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Growth and Employment *through Innovation*

Technology and Knowledge for Economic Growth and Employment in Europe

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The road to the European knowledge-based society – the contribution of organised civil society to the Lisbon Strategy

Exploratory Opinion of the European Economic Social Committee
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Introduction

One of the important pillars of the EU Lisbon Agenda is to prepare the road towards a European Knowledge Society with the help of specific measures. This shall support the longer-term sustainable competitiveness of Europe, which is necessary to achieve high employment and reduce unemployment.

There is consensus among policymakers that Europe can safeguard and expand its standard of living and its welfare state only by means of high-quality products and services. To achieve this, the innovative dynamic of Europe's society and eonomy need to be strengthened. R&D and education and training can contribute importantly towards this end.

The emerging new international division of labor is seen by the general public mainly in the form of increasing market shares of Asian and Latin American emerging countries at the expense of products and services previously produced by European firms and their workers. This perception is strengthened by the feeling that more and more productions are moved from „old" Europe to the new member states and other emerging countries. The public does not see – and the media do not adequately report – that such outsourcing and component production improves the competitiveness of local firms, that they are witness to the strength of the organisational and logistical know-how of European firms, whose ability to internationalize their chain of production is essential for their survival.

It is quite paradox that this pessimistic view of the effects of globalization is frequently reinforced by those workers whose daily work experience shows them the importance of such internationalization. Logically, they should be the heralds of an optimistic view of globalization.

Economic policy is asked by the European public much more frequently to protect existing jobs, to provide protection against perceived „dumping" by new competitors, rather than „how can we realize the opportunities which globalisation offers to us?", or „what can the role of economic policy at the national level, at the intra-EU level and/or at the global level be in order to bring us as many of the benefits of globalization?".

The European Spring Summit in March 2006 during the Austrian EU Presidency will deal with these questions. In preparation, the Austrian Ministry of Finance asked the experts of the Austrian Institute of Economic Research to structure the topic „Technology and Knowledge for Economic Growth and Employment in Europe" by means of developing a number of issues for discussion of policy relevance. The experts deal with the production of know-how, its dispersion and absorption by enterprises and a number of economic policy questions, e.g. „Is there a potential conflict between the joint objectives of growth and jobs, given the low skills of many people who might enter or re-enter the workforce?", or „Will the new-start of the Lisbon strategy in March 2005 provide the necessary impetus to achieve the goals set? Which additional policies.. would help in approaching the targets?"

At the same time, a request was made by the Austrian government to the European Economic and Social Committee (EESC) - the European social partner forum, to develop an Exploratory Opinion on „The road to the European knowledge-based society– the contribution of organised civil society to the Lisbon Strategy". The EESC approved this Opinion formally on December 2005. It is contained in this volume. It comprises, in addition to detailed analysis – 17 Recommendations and Conclusions. Their point is to safeguard the creation and promotion of a European Science Space beyond 2010 (the „Lisbon date"). This is seen as a pre-condition to strengthen the European Social Model. The EESC requests all EU social and economic actors to invest more heavily into the knowledge economy and asks governments to provide tax incentives to this end. The European Commission should have a leading and guiding role in this process. The Austrian Ministry of Finance welcomes the analyses and recommendations in this volume as important inputs from research and social partners. As is usual, the Ministry disavows responsibility for the contents, which rests with the authors. Let me thank both institutions for their important contributions which will hopefully stimulate discussion during the coming months.

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Background Paper for

"Technology and Knowledge for Economic Growth and Employment in Europe"

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Background Paper for "Technology and Knowledge for Economic Growth and Employment in Europe"

Background

The Austrian Presidency attaches utmost importance to achieving progress with the implementation of the Lisbon strategy, as newly started by the Spring European Council 2005. This Conference is designed to discuss, based on up-to-date research results, a central theme of the knowledge-based society: the impact of technology and knowledge on growth and employment. An exchange of opinions among top-level politicians and experts will delineate the possible contribution of economic policy to enhance and accelerate this impact and help shape further Presidency activities to implement the Lisbon strategy.

The Conference will concentrate on three thematic blocks: knowledge production, the application of knowledge in the production process, and economic policies for growth and employment. The following overview of issues and questions may serve as a background for the discussions in the Conference.

1. Knowledge production: What are the issues for growth and employment?

There is no unique definition of the "*knowledge economy*", but it can be characterised by the strategic importance it attaches to the allocation of resources (i) to R&D and other formal modes of knowledge creation; (ii) to the formation of human capital through education and training; (iii) to the management of information, knowledge and expertise; and (iv) to the organization of markets of rights in knowledge (Foray, 2004).

Knowledge is seen as a central element in the *competitive process* of economic growth at firm, regional and country levels, but it is also a critical precondition for individual prosperity. In the knowledge economy, although it is not restricted to the realm of high technology, *science and technology* tend to be central to the new "growth sectors" of the economy, among them the information and communication technology (ICT). ICT as a *general-purpose technology* with broad applicability provides a powerful infrastructure that offers new opportunities to any knowledge-driven activity (Bresnahan, 2000). In many industries and activities, firms try to make *innovation* a regular component of their activities. Allocating a significant fraction of entrepreneurial activities toward technological innovation is becoming

a key feature of the system (Baumol, 2002). *Markets for knowledge* are a powerful mechanism for technology transfer. As the huge volume of market transactions involving technology trading shows, firms are quick in finding opportunities for profitable dissemination of innovations.

The knowledge economy is, therefore, a useful framework for addressing the changes in the production and distribution of knowledge in modern societies. There are a few broad themes related to the production of knowledge, via education and training as well as research and development, that merit discussion.

Education and training systems

The formation of human capital can either be of the tangible or the intangible type. *Tangible* human capital is defined by "physiological" attributes at the macro-level, like health, strength, and longevity. It is an important dimension of knowledge, since depreciation of knowledge stocks involves deterioration (and termination) of mental or physical capacities of carriers of useful knowledge. *Intangible* attributes include psycho-motor based skills, cognitive as well as procedural capabilities. The latter group involves creativity and innovativeness; problem-solving abilities and leadership; the ability to redeploy skills and competences from one particular context to another; and social capabilities. The effectiveness of education and training systems depends on their success in aiding individuals to acquire the intangible components of human capital.

The way from knowledge to competences

Some of the challenges for education and training systems become obvious when knowledge is distinguished from competence. While *knowledge* empowers its possessors with the capacity for intellectual or physical action, *competences* involve the ability to use a certain kind of knowledge in an effective manner. This difference is critical to clarify where to place the various education/training activities: the initial stock of knowledge can best be acquired by formal education; on-the-job training activities are devoted to the acquisition of competences; and life-long learning involves acquisition of both new knowledge and new competences at different periods of life.

Despite the continuous evolution of economic and technological factors in a society, *competences remain remarkably stable* over time. This holds in particular for "soft skills" such as leadership, teamwork, analytical and problem solving capabilities, and the capacity to communicate. Such competencies cannot be acquired just by training. However, there are a number of intangible attributes of human capital the acquisition of which by individuals is the *task of the education and training system*: (i) learning to learn (Stiglitz 1987, David, 2001b), i.e. the capability to transfer a given set of skills to a wide class of learning situations; (ii) mastering new ICT as the modern general purpose technology; (iii) managing knowledge to

deduce any number of skills that everyone needs to develop, such as communicating, codifying and retrieving documents; and (iv) developing capabilities for creativity, entrepreneurship and innovation which are greatly rewarded by the pay-off structure of our economies. Overall, the education and training system must ensure the passage from knowledge to competences.

In modern societies, people live in *networks of relations*, many of them mediated through electronic technologies. The new conditions for knowledge trading and sharing (specialization, asymmetrical distribution of information, anonymity among interlocutors) entail the capabilities to create and maintain effective inter-personal and inter-organizational transactions (David and Foray, 2003). *Adjusting skills and abilities* to the constraints of the knowledge-based economy is a major challenge of the education and training system which should in particular facilitate the acquisition of cognitive and interactive competencies.

Does the education and training system support a transition to the knowledge economy?

Education and training systems are prone to carry *externality problems*. For instance, firms will have an incentive to invest in training less than the socially optimal level. This is because firms are faced with a trade-off innovation and on-the-job training: On the one hand, *innovation* (defined in the Schumpeterian sense as creative destruction) requires labour market flexibility to minimize the cost of dismissing employees and increase the ease with which destruction can be realized (Saint Paul, 2002). On the other hand, labour market flexibility erodes the incentives of firms to invest in *training* because what a worker learns in a particular firm can be redeployed in other contexts (David, 2001a). To cope with rapid changes and creative destruction requires increasing attention to *life-long learning* which has an economic rationale in terms of private and social benefits. It has to be kept in mind, however, that such a broadening of education triggers a new quantitative leap forward regarding efforts and resources devoted to education and training.

The last two decades have been characterized by a *widespread dissatisfaction* in the business, civic and political community with the general performances of education systems. As a consequence of the OECD PISA rankings, some countries are pushing strongly for an increase in the efficiency of schools and teachers (Coock and Foray, 2005).

Does the education system influence the quality and intensity of research activity?

In the process of building research capacities, there is a *complementary relationship* between human capital and R&D investments. To accelerate growth, it is therefore not enough to just increase R&D expenditures, it is rather necessary to increase all inputs related to the growth process (Romer, 2000, Mohnen, 2004). During the last three decades, university policies in the US and in Europe have created a distortion in favour of basic research instead

of training undergraduates. *Undergraduate institutions* now form the bottleneck in the training of scientists and engineers. Policies are therefore required to restore some balance between teaching undergraduates while preserving the strengths of existing institutions of basic science. Romer (2000) has pointed at the importance for the growth process of sufficient allocation of students to the scientific and engineering disciplines; in Europe, only 55 percent of young scientist go to the business sector, while in the US this figure is 83 percent.

Research and development

There is a lot of evidence about the *influence of R&D on economic growth*. Estimates of private and social returns to R&D provide convincing material of large spillovers, the social returns to R&D being about twice that of risky physical capital (Griliches, 1995, Hall, 1996). Most R&D intensive industries increase their demand for college-educated workers at a faster rate than the less R&D intensive industries, the former thus creating more and better employment with higher wages. Dividing the economy in "progressive" and the "non-progressive" sectors (Baumol, 1967), the former are those where R&D is the dominant mode of knowledge creation.

Does R&D still matter in a context of multiple and diversified sources of innovation?

With the growing importance of the "new mode of knowledge production", which involves any cognitive activity and learning (Gibbons et al., 1994), knowledge creation has become scattered between a growing number of "intelligent agents". R&D as professional scientific research still matters, though, and its economic value should not be confused with that of other sources of innovation (such as learning-by-doing). What makes R&D unique, is the ability to carry out *experiments* for advancing knowledge (Nelson, 2003), and the use of "laboratories" as unique locations for realizing top-quality experiments. Only top-quality experiments are relevant for the advance of knowledge. They are characterized by their independence concerning methodology and results, their capability of processing the data produced during the experiment, and their ability to analyse the causal inferences. One important feature of R&D is that it is tries to conquer *new territory* in the sense that laboratories are continuously set up in new fields.

Basic research and applied research

There is abundant evidence on the positive relationship between R&D investments and productivity growth, reflecting that *applied R&D* is important to convert ideas into realities. But there is little empirical research which quantifies the effects of *basic research* on productivity growth at aggregate levels. Conceptually, however, there are three sources of social benefits that can be derived from basic research investments (Steinmueller, 1994): (i) information from basic research discoveries may be applied directly to the creation of new processes or products; (ii) basic research may create a greater variety among available

products; and (iii) research outcomes may produce inputs into other basic and applied research activities. Considerable complementary investments in applied R&D are necessary to translate any basic research advance into new products and processes, and the benefits are typically separated from the basic research "event" by a substantial period of time. Thus, basic research information may provide economic benefits by improving the allocation of research resources among competing areas of applied research and by improving the payoffs to these applied research investments. The benefits do not require discoveries that open entirely new areas for applied research, but they do hinge on *liberal dissemination of basic research results* (David, Mowery and Steinmueller, 1992, Nelson, 1993).

The indispensable link in the chain of events occurring between abstract research and concrete applications is provided by *engineering* ("transfer science"), the impact of which runs both ways: it creates an impetus toward transforming basic knowledge and creating learning programs; and it lays the basis for the profitability of scientific research (Rosenberg, 2004). According to Nelson and Rosenberg (1994), engineering sciences were early recognized by US universities, and they have been an important ingredient of the American performance in terms of knowledge transfer between academia and industry. "Use-inspired basic research" (Nelson and Romer, 1996) is a similar concept maintaining that dedicated fields, projects or disciplines are needed to support knowledge transfer. Romer (2005) adds the idea that feedback and transfer entail changes of levels of abstraction. A typical process of knowledge transfer starts from some concrete level of analysis, then strips away the context and details to examine the essential elements in the problem, and then puts the insights back to work. Romer considers economics as a good example of a discipline having reached a high level of abstraction (starting a long time ago from concrete problems), but having paid too little attention to linking abstraction back to practice; there is thus a need for some kind of "economics engineering".

Invention here, innovation elsewhere; innovations here benefits elsewhere…

The development of new products and processes rests on a proper knowledge infrastructure which creates sufficient "intellectual density" in the domain of basic research and transfer science. However, great intellectual density on the *invention* side will not suffice to ensure the development of *innovations*, if entrepreneurial activities and absorptive capacities of industries are weak. This raises a range of issues dealing with the post-invention costs and risks involved in taking a new discovery out of the laboratory and developing it into a successful commercial place. Indeed, a country with a *good invention system* has no guarantee that the innovations will be developed here. And a country having *both a good invention and a good innovation system* has no guarantee that it will be able to capture the benefits of innovations. The benefits are likely to accrue abroad in industries with strong market spillovers and with major markets abroad, or when selling-off a company to foreign-based corporations is the easiest way to exit the market, or in the case of R&D labs of multinationals which absorb local talents, but derive the benefits of new knowledge in all markets served.

Issues and Questions

- What is the knowledge economy all about? Are the differences between knowledge and competence relevant for the knowledge economy? Is the supply of knowledge commensurate with demand?
- What are the new challenges for the formation and accumulation of human capital in a knowledge economy? Do the education and training systems in the EU facilitate the adjustment of skills and abilities to the constraints of the knowledge-based economy?
- Does the education system influence the quality and intensity of R&D activities and the capacity to innovate? What is the role of basic research for applied research and innovation?
- Given the growing importance of knowledge production by some "intelligent agents", does R&D as professional scientific research still matter? Are high-quality experiments and „laboratories" indispensable for innovation?
- In Europe, engineering sciences have long been neglected in the innovation process. Does that account for some of the difference in the development of the growth potential vis-à'vis the US and what improvements can be thought of in Europe?
- Among the various production and application stages of knowledge, which networks are relevant for the research climate and the transfer of knowledge? What are the implications of the increasing internationalisation of knowledge production?

2. Application of Knowledge for Growth and Employment

Knowledge is translated into economic activities by its use for the development of new products and services. The application of new knowledge and the re-combination of existing knowledge are important ingredients in the innovation process which is a driver of economic growth and competitiveness of firms and nations. This section concentrates on the application of knowledge in the economic process through the development and introduction of innovations.

Innovations are always based on inspiration, creativity and research but at the same time build on a large existing pool of external knowledge. In the *innovation process* firms are actively seeking external knowledge, i.e. they engage in innovation co-operations, start or finance research at specialised institutions (science/industry links), transfer technologies, hire personnel with complementary skills or invest in new equipment (technology diffusion). The national innovation systems literature (Lundvall, 1992; Nelson, 1993; Metcalfe 1995) is concerned with all of these activities through which knowledge is transferred and then recombined, augmented by knowledge generated internally (R&D activities) and eventually translated into new products and processes.

The complex nature of the innovation process at firm level has implications for the design of policies to foster innovation. *Innovation policies* should therefore strongly integrate and co-ordinate the different subsystems which produce and disseminate information. As the innovation system changes over time, policies have to continuously adapt to new situations and challenges. In the European Union, the efficiency of the largely nationalised system of knowledge production could be significantly increased if it were actively integrated and complemented by a strong European dimension. Thus the co-ordination of national policies, transnational learning, cross border co-operation should be more than catch phrases in the context of European innovation policy. A true European innovation policy holds substantial potential for an improved output of the still highly fragmented and little co-ordinated European innovation system.

What kind of knowledge is required and used in the innovation process?

The kind of knowledge that is needed by enterprises largely fall into two categories: problem-solving skills and learning capabilities. The former involves the *capacity to create new knowledge*, while the latter is associated with *absorptive capacity*: the ability of a firm to recognize the value of new, external information, to assimilate it, and finally to apply it to commercial ends. The harder the problem at hand, the more important is absorptive capacity. In view of the omnipresent resource constraints on time and money, critical knowledge is only part of the need; the ability to know where complementary expertise can be found (who knows what) is also crucial (Cohen and Levinthal, 1990).

In developing new products and introducing new processes, EU enterprises rely heavily on their *own knowledge base*. 38 percent of the firms state that knowledge from within their own enterprises (i.e. management knowledge and employee knowledge) is of "high importance" (European Commission and Eurostat, 2004). Among *external sources of knowledge*, customers (28%) and suppliers (20%) are the most frequently used sources. As expected, customers are more important in the service sector than in the manufacturing sector (Von Hippel, 1988). Firms often benefit from customer-driven innovation either through direct observation of the customers' use of the firm's products, or through the customers' active modification of products (von Hippel, 1988). The knowledge potential of universities (5%) and government research institutions (3%) plays a minor role for EU enterprises. Fairs, exhibitions (16%), professional conferences, meetings and journals are still more important information and knowledge sources for European firms. Despite the relatively low use of universities as information sources for innovation, *university research* has historically been an important source of external research knowledge as well as a source of tools and methodologies for industrial researchers in the development of new product and process innovation. This is particularly the case in science-based and technology-oriented firms such as biotechnology, pharmaceutics and information and communication technologies (McMillan et al., 2000).

How to improve the use of knowledge?

The basic question in this respect is how innovation systems become more permeable to new (scientific) knowledge. The production of knowledge or innovations, respectively, involves a whole range of unknowns and contingencies. Markets to underwrite all of these either do not exist at all or not to the extent necessary. While it is impossible to predict whether the results from innovation activities pay off or not, firms do need *sufficient incentives* (in terms of compensation) to innovate in the first place.

With respect to the *application of knowledge* the following areas are of importance:

Education policies

New knowledge can only be applied by knowledgeable people with sufficient educational background. Therefore, investment in human capital through education and training is a key factor in the innovation process, or more generally, in the process of knowledge production. In the first place, absorptive capacity in form of in-house R&D and innovation activities mainly depends on the availability and quality of science and technology (S&T) workers. If firms face a shortage of S&T personnel, they are less likely to develop new products or introduce new organisational practices. Secondly, skilled and trained workers have a comparative advantage with respect to learning and implementing new technologies and are therefore indispensable for the successful transfer of new technologies to firms (Bartel and Lichtenberg, 1987). Third, it is well known that technological innovations create jobs which require a higher skill level. This is commonly referred to as technology-skill complementarity or skill-biased technological change.

Policies to protect intellectual property rights

Successful private innovation activities generate new scientific knowledge, and the society as a whole invariably profits from higher stocks thereof. Knowledge, however, is (in parts) a *public good* featuring the well-known properties of non-excludability and non-rivalry in consumption. To the degree knowledge spills over and generates positive externalities, the innovating firm itself is not in the position to exclusively appropriate all benefits related to its privately financed innovative activities (appropriability problem). *Policy options* to meet this kind of market failure would be, first, to internalise knowledge spillovers and enhance the appropriability of research results. This can be done either by granting intellectual property protection in form of patents, or by allowing firms to form joint research ventures without the threat of antitrust enforcement (Hall, 2002A). Second, since from a national/aggregate perspective, it does not matter who provides for innovation as long as sufficient amounts thereof are generated, the government may also undertake own research/innovation efforts or contract out and subsidise private sector initiatives. In particular with respect to basic research, governments effectively take on the responsibility for providing innovation as a

public good or they provide direct funding to enterprises in their fulfillment of basic research activities.

Policies which foster science/industry links

Universities and public research institutes are important elements of the national innovation system. They conduct basic and applied research, and train engineers and other technical personnel. In particular, science-based and technology-oriented firms (e.g. biotechnology, pharmaceutics, information and communication technologies) make use of university-educated personnel, universities and public research institutes in their innovation process.

An important trend in several EU countries has been a substantial increase in *university/science-industry partnerships*. However, the overall level of interaction is still low which is partly due to the emergence of new technology fields such as biotechnology and ICTs. Biotechnology and semiconductors emerge as one of the areas where interaction between science and technology appears closest and most direct, with the industry rapidly exploiting new knowledge developed by universities. Another evidence of the growing links between science and industry is the increasing share of business funds in university-performed research. In recent years, many countries have implemented policies that facilitate the transfer of knowledge from universities to companies. Such policies include the establishment of legal frameworks, the creation of technology transfer offices within universities, incentives to increase the mobility of researchers to industry and to establish large co-operative R&D centres. Many writers agree that these measures have contributed to the increased number and scope of university-industry links (Link, 1996; Hall et al., 2000; Cohen et al. 1998; Caloghirou et al., 2001). Furthermore, such links are shown to be strong, though mostly local in nature and affected by the size and quality of the university (see the seminal paper by Jaffe, 1989).

Policies to facilitate co-operation

The *main benefits* of R&D/innovation collaborative agreements are represented by risk sharing, exploitation of economies of scale and scope, reduced duplication of research efforts, access to complementary assets and reduction of time to market (Teece, 1986; Jorde and Teece, 1990). Firms undertaking R&D collaboration acquire new capabilities and improve their ability to monitor, absorb and exploit external knowledge (Cohen and Levinthal, 1989; Rosenberg, 1990). Most collaboration persists over a long time horizon (Howells, 2000). The structure of co-operations (with customers, competitors, universities, etc.) is similar to the information/knowledge sources detailed above.

A special *characteristic* of innovation co-operation is the fact that innovation co-operation is more common amongst firms with a high share of new or significantly improved products. Using data from the Community Innovation Survey (CIS), Tether (2002) finds evidence for the UK that innovation cooperation is more common amongst firms introducing new market

products. Similarly, there is a lot of empirical evidence that co-operation partners provide complementary expertise, knowledge and resources. Studies based on German CIS data find that innovation/R&D co-operation is a complement for international innovation/R&D expenditures (Kaiser, 2002; Becker and Dietz, 2004). Evidence based on the CIS shows that industry-university collaborations are positively associated with innovation intensity and the share of new products.

In recent years, EU firms increasingly started to acquire their knowledge from external sources. One important form of collaboration is the collaboration through *strategic technological alliances*. Narula and Hagedoorn (1998) show that the number of international R&D alliances has grown at an annual average rate of 10.8% between 1980 and 1994. There is also evidence that non-equity agreements (strategic alliances) grew at a faster pace than equity alliances (such as joint ventures) (Hagedoorn, 1996). Technology alliances are an appropriate way to deal with the complexity of new technology fields such as ICT and biotechnology (Hagedoorn, Link and Vonortas, 2000).

Policies to foster the creation of new technology-based firms and spin-offs

There is a widespread perception among policy makers that new technology-based firms and spin-offs are an important source of innovation, new technology and employment creation. University spin-offs are seen as an important channel for the transfer of technology. Academic spin-offs are expected to translate scientific findings quickly and directly into marketable products and processes. Stimulating and assisting academic spin-offs is already an important element of innovation policy.

The *empirical evidence* is not always in support of the optimistic assumptions. Academic spin-offs in regions outside established high-tech clusters tend to stay small "boutiques" that usually fail to become global leaders in their market (European Commission, 1998; European Commission, 2000). This stands in contrast to some of the spin-off firms that have been founded in established American high-tech clusters, such as Boston and Silicon Valley (Degroof and Roberts, 2004; Kenney, 2000; Saxenian, 1994). This problem has been observed among European new technology-based firms in general (Storey and Tether, 1998a, 1998b). Plausible explanations include institutional factors, structural deficiencies such as tax disincentives or product market regulations representing obstacles to entrepreneurship (Rowen, 2000). Furthermore, an important deficiency is the underdevelopment of capital markets in Europe, particularly the lack of early stage venture capital. A frequently named additional shortcoming is the limited capacity of universities and public research institutes to promote and facilitate technology transfer and commercialisation. Until recently, European universities have considered technology transfer and commercialisation to be outside their mission (Owens-Smith et al., 2002). In the meantime as wide-ranging set of public *policy measures* aimed at creating and fostering academic spin-offs has been developed (Nauwelaers 2002). These measures are part of a wider set of 'technology transfer' policies

directed at encouraging intensified co-operation between public sector research institutions and private research.

Framework conditions for the diffusion of technologies in a broad sense Innovation co-operation

Diffusion can be defined as the process by which individuals and firms in a society/economy adopt a new technology, or replace older technology by newer technology (Hall, 2004). Diffusion is an important part of the innovation process since learning, imitation and feedback effects arising during the spread of innovation enhance the original innovation (Hall, 2004).

Tellis, Stremersch, and Yin (2003) analyses the takeoff of 137 new products across ten categories in 16 European countries and find that large European countries, such as the UK, Germany and France, show early product introductions but late product takeoffs, while Scandinavian countries, such as Sweden and Norway, show relatively late product introductions and early takeoffs. The average time between product introduction on the national market and sales take-off (*time-to-takeoff*) is found to be around 4 years in Denmark, Norway and Sweden, around 5 years in Finland, Ireland, Belgium, Switzerland and the Netherlands, about 6 years for Austria and Germany, 7 years for Italy, Spain and France and roughly 9 years for the UK, Greece and Portugal. On average, time-to-takeoff in Scandinavian countries (4 years) is only little more than half the duration in Mediterranean countries (7.4 years). Furthermore, time-to-takeoff differs dramatically across product classes. The mean time-to-takeoff is 8 years for white goods (kitchen and laundry appliances) and 2 years for brown goods (entertainment and information products). The authors also look at the economic and cultural factors explaining *inter-country differences*. Culture partly explains these differences. In particular, the probability of takeoff increases with higher need for achievement and lower uncertainty avoidance. In contrast, economic factors explain little in differences of response time to innovative products.

Issues and Questions

- Why are universities, government research institution and other non-profit research institute still insignificant knowledge sources for European enterprises?
- Why have European spin-offs from universities generally failed to become global leaders in their market?
- Why is the growth performance of European start-ups so moderate if compared to US start-ups? Is the lower level of venture capital a major cause? What are the alternatives to venture capital for the financing of start-ups?
- What is the role of education and qualification policies and competition for the diffusion of new technologies?

- Why is the diffusion of ICT in Europe much slower than in the US? Can this be linked to differences in the regulatory environment? Which regulations and administrative burdens are hindering the faster diffusion of new technologies in Europe?
- How should national and European innovation policies be coordinated? Is there evidence for a coordination failure in Europe? How could transnational learning within the European Union be intensified?

3. Economic Policies for Growth and Employment

The European Position

The current low-growth image of the Western European economy is a comparatively recent development. In the period after the Second World War, the Western European economies grew at an unprecedented rate which comfortably outstripped that of the USA. Even after the first oil shock in 1973, Western Europe continued to catch up with the US in terms of *output per hour*, although considerable problems with inflation and unemployment did evolve. By the early 1980s the level of unemployment in Western Europe had exceeded that in the United States. Obviously, the institutions that served Western Europe so well in the Bretton Woods era have been less successful thereafter (Cameron and Wallace, 2002). Even so, it was only in 1995 that Europe began to fall behind the US in output per hour, from 94 percent of the US level in 1995 to 85 percent by 2003 (Gordon, 2004). In addition to labour productivity, Western Europe has also declined relative to the US with respect to the *rate of labour utilisation*. In 1960, Western Europeans worked slightly longer hours than US workers (by around 2 percent), and a higher proportion of the population was in employment (by around 16 percent). By 2004, Western Europeans were working 15 percent fewer hours and employment per capita was 9 percent lower (Gordon, 2004).

Based on data from the 2005 OECD Economic Survey of the Euro Area, *GDP per capita* in the Euro Area was 30 percent lower than that of the USA in 2002, with just over two-thirds of that shortfall due to lower labour resource utilisation and the other one-third due to lower labour productivity. However, the average numbers for the euro area do not fully appreciate the achievements in some of the member countries. The question still remain as to the reasons for the shortfalls on average. One important issue is, why the *boom in ICT* has had less effect in Western Europe than the USA. Although Western European consumers have been quick to adopt new ICT goods, industry has been less adept at exploiting the potential for new markets and new ways of organising production (Gordon, 2004). Productivity growth in Western Europe between 1995 and 2001 was particularly slow relative to the USA in three main IT-using service sectors: retail, distribution, and financial services (O'Mahony and van Ark, 2003).

Framework for Growth and Employment

Economic growth is considered to rest on four main pillars: investment in physical capital, skills and training, innovation and competition. Each one of these pillars is linked to economic theory and policy with respect to productivity growth and labour resource utilisation. *Physical investment* has long been regarded an important source of growth, particularly in the short and medium run. Although it is debatable whether investment, in the absence of technological change, could be a source of growth in the very long run, there is the prospect of substantial effects on productivity that take a long time to emerge. As Gust and Marquez (2004) argue, it is plausible that the extent of *labour market regulation* in Western Europe significantly slows the speed of adoption of new technologies and new ways of doing business. Western Europe is often derided as having an extremely rigid labour market, an assertion which is only partially valid since the economies of the EU are extremely diverse in their labour market institutions and outcomes. However, some of the institutions and regulations can be associated with poor outcomes, among them a high level of unemployment benefits paid indefinitely, low spending on active labour market policies, rigid employment protection legislation, and minimum wages combined with high payroll taxes along with large numbers of unskilled workers. There is also evidence that barriers to geographic mobility may matter for labour market outcomes (Cameron and Muellbauer, 1998, OECD, 2005).

The recent literature has given prominence to *innovation* as an important source of growth. To characterise the process of innovation, theoretical models have in particular examined the effects of 'learning by doing' (Arrow, 1962), and of research and development (Romer, 1990). In empirical studies it has been found that R&D spending affects productivity growth directly through its effects on innovation (Cameron, Proudman and Redding, 2005). Theoretical models and empirical evidence covering the importance of *competition* have spurred research into the effects of market structure on innovation and productivity growth. Whilst there is some evidence that increased competition is associated with higher growth in total factor productivity (Nickell, 1996), its impact on innovative activities is more complex: Within a straightforward Schumpeterian view, more competition reduces the reward to innovation. However, the incentive for firms to escape competition by innovating typically outweighs this effect (Aghion et al., 2001).

Policies for Growth and Employment

With the new start in March 2005, the Lisbon Agenda concentrates on growth and employment as the priority policy goals. The "Integrated Guidelines" package suggests action on three broad fronts: (i) macroeconomic policies need to create conditions for more growth and jobs in a dynamic and well-functioning Euro area; (ii) microeconomic policies need to make Europe a more attractive place to invest and work, and to enhance the climate for knowledge-creation and innovation; and (iii) policies need to attract and retain

more people in employment and modernise social protection. Here we only consider the last two areas of policy action.

Microeconomic Reforms

Two themes underlie the microeconomic and structural reform proposals. First, to establish a *climate for investment*, policy guidelines are aimed at implementing the single market more effectively, restructuring the regulatory environment, increasing competition, expanding and improving European infrastructure, and encouraging entrepreneurship. Secondly, to *promote innovation*, the guidelines aim to raise expenditure on research and development, facilitate the implementation of ICT, foster partnerships between universities and enterprises, and establish new technologies and markets.

Several of these elements are closely linked to the four growth pillars cited above. The drive to improve competition within sectors across the EU should improve not only product market flexibility directly, but should also have a beneficial impact upon research and development, thereby contributing towards both the competition and innovation pillars. There are, however, some *gaps and inconsistencies* in the guidelines. The investment guidelines suggest that government policies aim at creating an investment environment for firms, rather than engaging directly in investment spending. In contrast, one of the central aims of the innovation guidelines is to raise research spending to a centrally-planned target, of which a third would be directly state-financed. Such direct public intervention could be economically justified only, if spill over effects would render it impossible for firms to capture their return on research spending. However, it is not obvious that this applies to EU firms in general. Nor is it clear that all governments have the necessary expertise to implement research expenditure in an efficient and coherent way.

Employment Guidelines

The Employment Guidelines of the Lisbon Agenda have three broad goals: The first goal concerns the low *employment and participation rates* in the EU. Action is needed to tackle the persistently low employment rates of young people, the unskilled, women, and older people. Measures suggested concern active labour market policies and the review of tax and benefit systems in order to make work pay, and to modernise social protection systems. The second goal deals with the *adaptability of workers and firms*. As discussed above, it seems that the EU has had particular problems with the adoption and use of ICT in its service industries and that labour market institutions possibly retard the ability of firms to discover new ways of doing business. The third goal concerns *investment in human capital*. The EU seems relatively weak in high-skilled industries and in low-intermediate skilled industries. In contrast, productivity growth in high-intermediate skilled industries has been relatively good. In general, however, the EU workforce is quite well skilled and educated, although there are again big differences across member states. This suggests that the first two goals of the employment

guidelines should take priority and that the implementation of the third should be seen as supportive of the first two goals.

A major *obstacle* to the success of the employment guidelines lies in the rather inflexible view some member countries maintain of the European Social Model, this view largely reflecting the lack of co-operation of political elites and labour unions in reforms that change the relative positions of insiders and outsiders in the labour market. In addition, there may be problems with the goals of extending equal social protection to all workers. Consider the extension of employment rights to temporary workers, where it has been shown that high protection of temporary workers leads to low rate of transition from temporary work to permanent work (OECD, 2004).

The public dimension of the knowledge economy

The mainstream literature today puts great emphasis on the *role of market competition*, for advancing ICT-based investment in the "information society". There is also a preoccupation with the way private actors can capture information and businesses can control strategic knowledge assets. Somewhat in contrast to this literature, David and Foray (1995, 2003) hold that *public infrastructure elements* of national innovation systems, and their capacity to distribute knowledge, are at least as important over the long run as the direct incentives and subsidies that most governments have been providing to encourage private company investments in R&D.

The efficiency of invention and innovation processes fundamentally depends on the existence of a freely accessible stock of knowledge and information. In contrast to this demand, the new salience of "knowledge" as an economic asset has led to a strengthening of *intellectual property protection*, which has exacerbated the rising cost of exploratory research conducted by communities of open science researchers. Public funding for "open" scientific enquiry does not adjust upwards automatically to offset those extra costs, and extensions of legal protection for databases threaten to impede the use of large and complex "information spaces" (David, 2001).

The *public dimension of basic research* is undisputed. The free circulation of knowledge resulting from basic research facilitates cumulative research, increases opportunities for innovation, and enhances the quality of results (since everyone can examine them and try to reproduce them). It is generally considered that the existence of public knowledge generates (at least within a specific field) a net increase in private returns to investments in R&D. Thus, a continuous supply of public knowledge is needed to ensure that innovation continues to flow at a rapid rate. Among the important societal objectives which the private sector cannot be expected to perform unassisted is the generation and dissemination of knowledge relevant to *solving problems of future generations*. Private markets also tend to under-fund projects targeted to the needs (or simply the tastes) of social minorities and to the

well-being of citizens without financial resources to purchase critical goods, such as drugs to combat infectious diseases or new educational methods.

Another issue involves the provision of conditions in society that nurture the formation of *independent communities of "expertise"* in complex scientific and technological matters. This is a form of public good, and it would be unrealistic to expect profit-seeking private entities to subsidise the work of such communities whose opinions cannot be controlled and might benefit rival companies. There are forms of "inherently public property" which are controlled neither by government nor by private agents, in particular those based on voluntary collaboration between knowledge producers and users. It is probably this category of public property that contributes most to the revival of the public domain in knowledge-based economies.

Should applied research and engineering be promoted more strongly at the expense of free basic research?

While public support of (horizontal) research is virtually undisputed, it is less obvious to view public science policy as a tool to influence the allocation of resources among research fields. As a general rule, universities should have the autonomy and freedom of build their research portfolio according to their own perceptions. University managers can be expected to be in a better position than the state to generate the dynamics for the best allocation of resources among academic fields. Apart from the general principle, push programs should not be precluded in case of a discipline which does not yet exist. Considerable evidence demonstrates that the areas of greatest present return from scientific investigation lie at the interstices of established fields. And the creation and development of new fields at such interstices is characterised by severe research market failures which may necessitate some government intervention.

R&D policy should not be treated in isolation

The implementation of proper conditions to develop a vibrant and effective system of knowledge production should not be treated in isolation of macro-economic, competition and labour market policies. R&D investments are long term and, as such, sensitive to economic cycles. A flexible macro-environment could help firms to maintain R&D capacities also during recession periods. In addition, competition policy, intellectual property rights and the building of efficient markets for technologies are important to facilitate market entry and exit. Finally, labour market flexibility is important for supporting the Schumpeterian process of creative destruction. Minimizing the costs of dismissing employees increases the ease with which destruction can be realized and decreases the costs of developing new activities. However, labour market flexibility and low costs of destruction must be related to life-long learning programs, because easy destruction is socially acceptable and economically

efficient only if individuals have acquired the capabilities to confront constant changes and to transfer their skills from one learning setting to another.

The Framework Programmes as major EU policy tools

The European Union has addressed a great number of the above mentioned issues through the Framework Programme (FP) which is the Community's primary funding mechanism for collaborative R&D projects in science, technology and engineering. The first three FPs concentrated on soft networking activities among European innovation actors. In 1994, FP4 introduced innovation policy as a Programme; it incorporated the 'systemic approach' on describing innovation and upgraded the policy discussion through the Green Paper and the First Action Plan. The dominant policy consisted of creating soft networking projects, and support networks on the diffusion of innovation and on IPR were installed (CORDIS, IRCs, IPR help-desk). Regional innovation support actions were spread throughout Europe. Monitoring activities were initiated (Trend Chart) and innovation financing became a key policy instrument. These priorities were maintained in FP5, with the exception of innovation finance which became an issue – jointly with regulatory issues relating to entrepreneurship – in the MAP (Multiannual Programme for Enterprise and Entrepreneurship, 2001-2005). The policy results and orientations of FP5 lead to a more widespread acceptance of the systemic factors affecting innovation. The decisions on the development of the European Research Area (ERA) resulted in the first clearly formulated EU innovation and R&D policy pattern. FP6 implements the main aspects of this policy. It also supports and strengthens the ERA concept and facilitates the implementation of the Lisbon Strategy. However, as criticised in the Kok report (2004), the targets set in Lisbon seem rather ambitious, and fulfilment by the Member States may be jeopardised by the lack of commitment and determined political action, overloaded agendas, poor coordination and conflicting priorities. FP7 is currently under preparation and will take over from FP6 towards the end of 2006. The Competitiveness and Innovation Programme has already been released to the public. It focuses on the relationship between innovation policy and competitiveness with the key elements being in line with the Lisbon Strategy. As the FPs have become ever more complex over time, efforts are under way to simplify the design and the implementation rules. Towards this end, FP7 is governed by the principles of flexibility, rationalisation and coherence.

The Lisbon Agenda and Beyond

The Lisbon agenda recognises that future prosperity is dependent upon the EU being an attractive place to work and invest. Not completely in line with this understanding is the occasional intrusion of formalised policy targets (such as spending 3 percent of GDP on R&D) or fashionable catchwords (as the 'knowledge-based society'). Other limitations come from EU initiatives that are likely to result in a higher regulatory burden and hence lower growth

and fewer jobs (e.g. projects related to environment, equality, social inclusion, consumer safety). There is a clear need for more analysis of the costs and benefits of intervention and the optimal way to co-ordinate economic policies in the EU.

Rather than concentrating on all areas of the economy, EU policies should *focus on specific sectors*, in particular on ICT-producing manufacturing (office machinery and electronics) and ICT-using services (retail, distribution and financial services). Although the EU does have a productivity problem in IT-producing manufacturing, there are potentially larger problems in the traditionally low-technology industries of retail and distribution. These are areas where US productivity has made great advances since 1995, but the EU has not. Part of the explanation lies in the slow adoption of ICT as well as labour market and land-use regulations that make the attendant business change difficult (Gordon, 2004). There is plenty of scope for the EU to improve its performance by improving skills and investment among the comparatively dull firms and industries that constitute the vast majority of economic activity. This seems to be a bit in contrast to the Lisbon strategy, but is just complementing it. Also, the ambition of the EU Commission to strive for more than just McJobs is well placed within the agenda, but it is precisely McJobs that many EU countries lack, jobs that offer pathways to work for the young, the unskilled, women and the old.

There are a number of areas for possible reform that are largely *missing* from the Agenda. Many economists have argued that one key element of Western Europe's Golden Age of Economic Growth was the redeployment of labour from *agriculture* into industry. Reform of the CAP, along with a better investment climate, offers the chance to repeat that experience, albeit on a smaller scale. Similarly, progress on *trade reform* to open EU markets also offers the chance to reallocate resources on the basis of the EU's great strength, its skilled and competent people.

Issues and Questions

- Will the new-start of the Lisbon strategy in March 2005 provide the necessary impetus to achieve the goals set? What policies, in addition to the integrated guidelines, would help in approaching the targets?
- What is the contribution to the knowledge economy of raising expenditures on research and development to 3 percent of GDP? Should in addition good practices of national innovation systems be studied?
- What can be expected from fostering partnerships between universities and enterprises?
- What should be the mix between direct investment spending by governments and just encouraging enterprises to invest? To what extent should public science policies influence the allocation of resources among research fields?
- What is the role of patents and other intellectual property rights in fostering or hindering

research and innovation?

- Is there a potential conflict between the joint objectives of growth and jobs, given the low skills of many people who might enter or re-enter the workforce?

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European Economic and Social Committee

SC/024
Lisbon Strategy

Brussels, 14 December 2005

OPINION

of the
European Economic and Social Committee
on
The road to the European knowledge-based society –
the contribution of organised civil society to the Lisbon Strategy
(Exploratory opinion)

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On 22 April 2005, the future Austrian EU Presidency decided to consult the European Economic and Social Committee, under Article 262 of the Treaty establishing the European Community, on

> *The road to the European knowledge-based society – the contribution of organised civil society to the Lisbon Strategy*

and under Rule 19(1) of its Rules of Procedure, the Committee decided to establish a subcommittee to prepare its work on the matter.

The subcommittee adopted its draft opinion on 9 November. The rapporteur was Mr Jan Olsson, the co-rapporteurs were Ms Eva Belabed and Mr Joost van Iersel.

At its 422nd plenary session, held on 14 and 15 December 2005 (meeting of 14 December 2005), the European Economic and Social Committee adopted the following opinion by 127 votes to 1 with 8 abstentions.

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Recommendations and conclusions

1. The EESC suggests that Member States and EU institutions commit themselves beyond 2010 to establish a Common European Area of Knowledge, based on intensified cooperation in Learning, Innovation and Research policies. This will be an important step in the relaunch of the Lisbon Strategy as well as in underpinning the European model of society, thereby also bridging the gap between Europe and its citizens.

2. This relaunch requires the public authorities and organised civil society in each country to be mobilised for this objective, by defining key priorities and proposing and implementing actions both on their own and in cooperation with each other, which also should be reflected in the national reform programme.

3. Member States, the European Commission, European and national parliaments, businesses and financial institutions as well as civil society must commit themselves to a Common European Area of Knowledge aimed at all citizens, organisations and companies and based on clearly defined targets, benchmarks, timetables as well as clear responsibilities.

4. The Internal Market remains the major cornerstone of the integration process, leading to improved economic performance, more and better jobs, social progress and sustainability. The interaction between the Common European Area of Knowledge and the Internal Market will release new potential for growth. Therefore, obstacles to the Internal Market that hamper the transition to the knowledge economy must be removed as quickly as possible

5. All citizens, all sectors and all regions must be encouraged to take part and be able to reap the rewards of the knowledge society, which provides unique opportunities to bridge existing divides.

6. Mobility is a way to acquire and transfer skills. Free circulation of labour, researchers and students must be stimulated, accompanied by decent wages and working conditions.

7. The EU, Member States and regions must redirect their public spending to growth-enhancing investments. Member States in cooperation with private stakeholders, should commit themselves to realising a "National Programme for Boosting Knowledge" backed by EU funding.

8. The EESC urges that the European Commission proposals concerning the 2007-13 Financial Perspectives for funding research, innovation and learning be upheld. The proposed 7th Research Framework programme must be fully realised and targeted to contribute to European innovative capacity.

9. The EESC urges business, financial institutions and private foundations to increase their investments in the knowledge economy and that they be supported in doing so by fiscal incentives.

10. The European Commission should have more power to give policy directions and monitor progress. It should publish an annual report on progress to be discussed by the Council and the European and national Parliaments, as well as the concerned stakeholders and the public.

11. The EESC suggests the launch of a permanent and structured debate to motivate the decision-makers at all levels and to further the dialogue with citizens.

12. National parliaments as well as national economic and social committees have a crucial role and must participate in the debate. Local and regional actors should be involved.

13. Private stakeholders should act and take responsibility through tangible contributions and actions. Social and civil dialogue are important tools to further life long learning, innovation and technology policies.

14. A sound macroeconomic policy focusing on growth and employment, should create the conditions for creating the knowledge society and should give priority to demand pull policies for new technologies.

15. Life long learning is the key to the knowledge society. The EESC reiterates its call for a Charter of Life Long Learning to be implemented at all levels. It should be supported by public and private investments as well as by the structural funds. Employment policies and

new forms of social protection need to create favourable conditions to enable workers to fully participate in lifelong learning. The Danish flexicurity approach may be an inspiring example.

16. High ambitions to foster health, sustainable environment, quality in urban and rural infrastructure, smart transport solutions, safe and reorganised workplaces and cultural heritage will generate new technologies and new innovative products and services and should be supported by healthy conditions for innovation and job creation in enterprises.

17. Dissemination of knowledge is a critical factor in policies to boost innovation and competitiveness. Industrial regions, technology parks and other innovative environments should be promoted.

1. Introduction

1.1 This EESC opinion is about how organised civil society can contribute to the knowledge society. It will focus on the role that social partners and other civil society organisations can play in establishing a "*Common European Area of Knowledge*" as one of the major planks of the Lisbon Strategy. It stresses the responsibility of civil society organisations in Member States to mobilise for this objective. The opinion will be underpinned by other EESC opinions on related subjects and by a Summary report drafted in collaboration with the national economic and social councils.

2. Context and analysis

2.1 Europe is a project for people by people. However current developments have created a gap between Europe and its citizens At the same time the sustainability of our unique model of society based on democracy, social and civil dialogue, a social market economy and cohesion is threatened by increasing global competition, an ageing population and environmental pressures. Different philosophies over which policy directions to take lie behind the current EU crisis. In order to restore confidence in the European project, policies must first of all be refocused on their original aims of economic and social progress and improving working and living conditions. The crisis constitutes a crucial opportunity for reorientation.

2.2 Central to such a reorientation are policies to achieve sustainable growth, create more and better jobs and raise real incomes through the realisation of a knowledge society based upon human resources, learning, research and innovation.

Enterprises are in a key position for this reorientation. They should direct their investments accordingly, but for this they need framework conditions that support their potential for innovation, growth and job creation.

2.3 The knowledge society, based on the responsibility of private and public stakeholders, must make for a more cohesive society which combats all kinds of inequalities. And in turn social cohesion is a prerequisite for a smoother transition to the knowledge society.

2.4 Prospects look rather alarming[1]. Business-funded research has been decreasing since 2000. EU total R&D expenditure is stagnating and falls short of the 3% target. It stands at 2% compared to 2.7% in the US and over 3% in Japan. The brain-drain is a very worrying phenomenon. Moreover, large emerging economics like China are catching up with the EU in terms of research expenditure.

The European Innovation Scoreboard shows that Europe lags behind the USA in 10 out of 11 indicators. This is a result of active US policies to support research and innovation through *inter alia,* public procurement, tax cuts, guarantees for venture capital funds and SME loans.

2.5 However, an assessment of research expenditure and innovative performance of the EU vis-à-vis the USA requires a deeper analysis. Europe has strengths both at Member State and sector level. European cooperation in aeronautics and the Galileo project can be highlighted as examples as well as the fact that the number of engineering students is higher than in the US. To boost its innovative capacity, Europe needs increased investments in life long learning, an additional 700 000 researchers, more technological poles and clusters, support for SMEs and better methods of disseminating knowledge.

2.6 Public investment in education is not progressing as rapidly as it should. The PISA study highlights some of the failures of the education system. Participation in adult education has only reached 65% of the 2010 target. School dropouts continue at the same level. University students face unemployment when they graduate. Moreover, by 2015 over a million primary and secondary teachers will have to be recruited[2]. The Commission could carry out a study on basic learning, in order to identify the keys to success in the most successful countries in the international PISA survey.

Private and public stakeholders must recognise that the whole of the education system needs to be reformed in order to improve performance and provide everyone from early childhood through to old age, with opportunities to take an active part in the knowledge society. They must lend their full support to this reform, which also requires new pedagogical concepts and qualified teaching staff.

2.7 The transition towards the knowledge society is changing the nature and organisation of work and the structure of enterprises. A knowledge-driven society and new technologies offer great

1 European Innovation Scoreboard 2004 – Comparative analysis of innovation performance, Commission Staff Working Paper, SEC (2004) 1475 of 19.11.2004.

2 Progress towards the Lisbon objectives in education and training (2005 report), Commission Staff Working Paper, SEC (2005) 419 of 2203.2005.

opportunities but also generate new risks and leave many behind. Jobs are restructured and tasks are redefined.

There is also a risk of relocation of headquarters, research and production from Europe.

New and better jobs have to be created by increased investment in learning, innovation and technology. The brain-drain has to be counteracted by finding new attractive sources of employment for university graduates in all Member States.

2.8 The knowledge society is a fundamental choice in addressing the challenges and it affects many areas of policy making. Its realisation requires an overall and comprehensive approach. Progress towards the knowledge society must be seen in a longer-term perspective beyond 2010. Policies must be pursued in a determined way.

2.9 To sharpen its global competitive edge by relying on its capacity to use the know-how and creativity of its people to produce high value-added products and services constitutes both a challenge and an opportunity for Europe. Resources have to be reoriented towards growth-enhancing technologies and innovative systems, safeguarding as well as adapting where necessary the essential elements of the European economic and social model in the wider context of sustainable development.

2.10 Knowledge creation, knowledge application and knowledge dissemination have to meet societal needs. Everyone has the right to reap the rewards of the knowledge society, everybody has a responsibility to take part in and contribute to the achievement of the knowledge society, if given adequate support.

2.11 Putting people first means focusing on learning, understanding, civilisation and cultural patterns to foster an environment that stimulates knowledge in its broadest sense. It is about human aspirations for knowledge which are not based predominantly on immediate benefit and which serve as the basis for the mix of theoretical, social and practical skills that are needed for the future.

2.12 Lifelong learning is the key to the knowledge society. High quality lifelong learning, based on models that make education and training accessible to everybody, gives people the opportunity to refresh their ideas, continually enhance their skills and play a full part in their community, family, neighbourhood and workplace. It is the basis for innovation, labour mobility and productivity growth. Motivation for lifelong learning starts by fostering the curiosity for learning in early childhood.

2.13 It is fundamental to strengthen and coordinate the links in the knowledge chain. The triangle linking private and public research institutions, universities and business (especially SMEs), should be reinforced. National and cross-border exchanges of qualified staff between industry and university can both help greatly. Basic education – from childcare facilities to secondary

education - and lifelong learning must be linked to universities in order to raise the quality of teachers and training staff and update their knowledge.

3. Shortcomings of the Lisbon Strategy

3.1 *"Alongside undeniable progress, there are shortcomings and obvious delays"* in implementing the Lisbon Strategy the European Council stated in March 2005[3].

3.2 There are many reasons for these shortcomings and delays.

3.2.1 Commitment to the Strategy is lacking. It must be recalled that the Lisbon Strategy was launched by the European Council without a clearly defined role for the EU Commission. A fundamental problem is the inconsistency of a European strategy that has to be implemented mainly at national level. Member States have not shown real commitment to the objectives and actions agreed upon. The open method of coordination (OMC) has not delivered the expected results. National action plans on employment, social inclusion and in other areas have been transformed into bureaucratic activity reports and the intentions of the Strategy only partially implemented. Fragmentation between policy areas continues. There is too little support from the EU budget. Good practice from other Member States is not taken into account. Member States also fail to take into consideration the social and economic effects of their policies on other Member States.

3.2.2 *The European Commission plays only a minor role in the Strategy.* It does not have sufficient and effective powers to give policy directions and monitor progress. For instance, the open method of coordination has no alarm system that would enable warnings to be issued.

3.2.3 *The Strategy is too abstract*. Having largely become an exercise for bureaucrats and experts the Lisbon Strategy is not a reality, either in the minds of people or in the media and the political debate. The effects of the strategy are not visible. Public opinion does not make a distinction between the effects of globalisation, EU policy and national policy on their living and working conditions. The differences and the interrelations between different policy levels must be highlighted so that people can have a full and clearer picture of what the EU stands for.

3.2.4 *The Strategy is a top-down process*. Even if there has sometimes been reasonable consultation, particularly in those countries with a strong tradition of social and civil dialogue, there is still much too little involvement of organised civil society in the Member States. This is certainly the case with the OMC for research and education. Consultation is often formal and restricted to the national level and does not give the concerned civil society organisations at all levels sufficient opportunities to take part. Employers and trade unions as well as other stakeholders have to be made more aware of their responsibilities and roles. Low involvement

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3 Presidency Conclusions European Council 22-23 March 2005, point 4.

also means that the reforms undertaken may miss the target and have negative social and economic consequences for those concerned. The EU focuses too much on structural reforms while it still lacks policies that empower citizens and their organisations to take on the challenges of a changing world.

4. The re-launch of the Lisbon Strategy – European Council March 2005

4.1. These shortcomings and delays led the European Council to re-launch the Lisbon Strategy, giving priority to growth and employment. *"Europe must renew the basis of its competitiveness, increase its growth potential and productivity and strengthen social cohesion placing the main emphasis on knowledge, innovation and the optimisation of human capital"*[4]. And the Council continued:

"A genuine dialogue must be encouraged among those directly involved in the knowledge-based society in the public and the private sector"[5].

The European Council fixed clearly defined objectives and suggested several actions to boost knowledge and innovation[6] twenty four integrated guidelines were established for the period 2005-2008 indicating three areas for reform: the macroeconomic, and microeconomic spheres and employment[7].

4.2. In order to make the refocusing of the Lisbon Strategy effective, the European Council called for improved governance based on increased Member State involvement[8].

Member States were required to draw up national reform programmes, by the 15th of October, based on consultation with all stakeholders that will identify key priorities for action. Contributions and responsibilities of the main stakeholders involved should be highlighted. However, changing political situations in some countries have caused delays. The Open Method of Coordination (OMC) will be used in some areas.

5. A Common European Area of Knowledge

5.1 The EESC proposes a Common European Area of Knowledge to which the Member States and EU institutions should commit themselves beyond 2010, in order to achieve the Lisbon Strategy objectives through increased European cooperation in Learning, Innovation and

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4 Presidency Conclusions European Council 22-23 March 2005, point 5.

5 Idem, point 10.

6 Idem, points 20-28.

7 See appendix.

8 Presidency Conclusions European Council 22-23 March 2005, points 38-41.

Research. This proposal was agreed with the national Economic and Social Councils in the Luxemburg declaration[9].

5.2 The cooperation should be based on clearly defined targets complemented by appropriate legislative and non-legislative measures. A key factor will be to develop efficient systems for transferring knowledge and exploiting best practice.

5.3 The EESC recognises that the constitutional base for the Common European Area of Knowledge is not the same as for the CAP, the EMU or the Internal Market. However to make progress all the relevant provisions of the Treaty should be fully exploited. Member States should make up for the lack of constitutional competence by showing political determination and put into operation common European policies through better and more efficient cooperation in order to realise the Common European Area of Knowledge. The Commission's role would need to be enhanced, so as to enable it to spearhead the process.

5.4 Civil society organisations in Member States also have a responsibility for progress towards the Common European Area of Knowledge. Major private stakeholders in each country must be mobilised. In this way, they can be protagonists in the "genuine dialogue" that the European Council called for and can partly compensate for the lack of political will. They must define key priorities and propose and implement actions on their own and in coordination with the public authorities. In addition, the issue of financial means must be addressed. The social partners should try to reach agreements to promote the knowledge society. Other sectors of organised civil society, including higher education and the research community, must contribute accordingly and elaborate their own platforms for reform.

5.5 The Internal Market, remains the major cornerstone of the integration process leading to improved economic performance, social progress and sustainability. The interaction between the Common European Area of Knowledge and the Internal Market implies synergy effects that will release new potentials for growth. Measures to boost learning, innovation and research will lead to higher competitiveness. A well-functioning Internal Market will allow for free circulation not only of goods, labour, services and capital but also of knowledge and ideas.

5.5.1 Therefore, certain remaining obstacles to the Internal Market that hamper the transition to the knowledge economy must be removed as quickly as possible. To realise these synergies and potentials, it is important to adopt the legislation on the Community Patent and the Intellectual Property Rights regime.

5.5.2 "Investments of businesses and other stakeholders in learning, innovation and research should be facilitated, including by state aid regimes and public procurement and within the framework of competition rules."

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9 Luxemburg declaration of presidents of ESCs of European Union and of the EESC. 26 November 2004.

5.5.3 A modernised EU industrial policy that is characterised by a sectoral approach is a fundamental building block for the knowledge society pooling excellence and providing stable and predictable framework conditions for the industry to develop.

5.5.4 It is also important to allow higher labour mobility in general between the Member States and to stimulate free circulation of researchers and students. Mobility is a natural way to acquire and transfer skills but has to be accompanied by decent wages and working conditions.

5.5.5 Universities and vocational training institutions must support the Common European Area of Knowledge by adapting a European approach to their activities. Existing instruments for the recognition of qualifications must be promoted[10].

5.6 A Common European Area of Knowledge is based on the fundamental right for everyone to reap the rewards of research, new technologies, innovation and learning. All people, all sectors and all regions must be able to participate. There must be adequate conditions for lifelong learning giving everybody the opportunity to participate. Education and vocational training are prerequisites for the knowledge society and, as public goods, must be managed by the public authorities in order to guarantee access for all, with the same rights and opportunities.

5.6.1 The knowledge society should not be a project for the elite convinced by the benefits of new technologies. Instead it must be conceived as part of an overall project and articulated with the other policies that are aimed at all citizens. It involves personal development, civic education and life long learning commensurate with the challenges of the 21st century. It is a unique opportunity to bridge existing divides and bring down existing barriers. To this effect it is crucial that new technologies are made accessible also to disadvantaged groups such as migrants and people with disabilities. New technologies and innovations must therefore to a greater extent be generated by initiatives and demand from users.

5.6.2 High quality basic education is fundamental. It is essential that everybody masters the basic skills in order to achieve the goal of education attainment for all. The underpinning for quality childcare facilities, that will give all children, irrespective of their social background, equal learning opportunities in the earliest phases of life.

6. Increased funding is needed to achieve the knowledge society

6.1 In order to realise the Common European Area of Knowledge the EU, Member States and regions must redirect their public spending to growth-enhancing investments in learning, innovation and research. The EESC proposes that the Member States, in cooperation with the

10 For instance the European Qualifications Framework (EQF), the Europe The European Credit Transfer System (ECTS) and the European Credit Transfer System in Vocational Training (ECVET).

private stakeholders, commit themselves to realising a "National Programme for Boosting Knowledge" with the aim of increasing investments in knowledge infrastructure and learning facilities for everybody.

6.2 In doing so, Member States and regions can be backed up by EU funding from the structural and cohesion funds. The 7th R& D framework programme will also play a crucial role. The Competitiveness and Innovation Programme (CIP), the Life Long Learning and the Progress programmes are important supportive instruments.

6.3 The EESC urges that the European Commission proposals concerning the 2007-13 Financial Perspectives for funding research, innovation and learning be upheld.

6.4 The 7th R&D framework programme is a test case. The European Commission has proposed a doubling of resources to EUR 72 billion. The Committee urges that this level be maintained. Otherwise the 3 per cent target for research spending will be jeopardised. If Member States decide to reduce the level of EU spending originally proposed, they must compensate through supplying additional resources at national level.

6.5 The EESC urges business, financial institutions and private foundations to take their responsibility for increasing their investments in the knowledge economy. It favours public-private partnership arrangements at European, national and regional level as a method of financing investment. The EESC suggests that fiscal incentives to boost R&D through grants, tax credits and loan guarantees be introduced throughout the EU under the condition that the knowledge generated is made accessible. Special financial and other assistance must be directed to SMEs, including social economy organisations, in order for them to participate fully in the Common European Area of Knowledge. There must also be adequate funding and incentives for citizens and their organisations to actively take part.

7. Improving governance

7.1 The EESC endorses the summit conclusions on improved governance, as they respond to its persistent requests to involve Member States' governments and all stakeholders at regional and national level including parliamentary bodies. The Committee trusts that National Reform programmes will be drawn up in consultation with organised civil society, also involving the Social and Economic Committees in those countries where they exist. The Committee will follow this consultation procedure closely.

7.2 The Integrated Guidelines decided by the Council do not really reflect the need for cohesion between the areas for reform, but remain fragmented. A case in point is that around ten guidelines are related to the knowledge society. The Council should consider a reformulation in order to integrate different policy initiatives that can establish a Common European Area of Knowledge.

7.3 The Committee emphasises management and effective implementation as important elements of the process. This requires, on the one hand, goals, benchmarks and timetables, and on the other hand, clear responsibilities to develop, implement, and monitor actions.

7.4 Even if ownership of the Lisbon Strategy lies with the Member States, the capacity of the Commission should be strengthened in order to give policy directions, monitor progress and send strong reminders to countries failing to meet their commitments under the national reform programmes for instance by:

- coordinating the relevant Community financial resources, programmes and agencies in an integrated EU programme for a Common European Area of Knowledge;
- reviewing and if necessary adapting existing scoreboards to measure progress towards a Common European Area of Knowledge focusing in particular on targets, deadlines and evaluation of the efforts undertaken by the Member States;
- measuring the real involvement of stakeholders in the elaboration of the National Reform Programmes;
- building a framework for convergence with a precise timetable and real participation by stakeholders in the OMC particularly those concerning research, education/training and employment; developing indicators, benchmarks and data that reflects citizens' concerns and aspirations;
- summarising the development towards the knowledge society in an Annual Report.

7.5 The Competitiveness and Employment Councils as well as the European Parliament and national parliaments should discuss the Annual Report and should also involve relevant stakeholders and the public.

7.6 The EESC suggests the launch of a permanent and structured debate to motivate decision-makers at all levels and the further development of public dialogue, in order to take on board citizens' aspirations and concerns and thereby fend off growing scepticism and lack of commitment. The debate must also include the local, regional and European levels and use innovative methods. Future challenges and strategic choices have to be addressed.

7.7 National parliaments have a crucial role and must participate. The EESC also recommends that debates on the National Reform Programmes be organised in each parliament prior to the debate in the Council, during the same month and, if possible, the same week. National economic and social councils and similar bodies also have a responsibility in this respect and in the countries where such councils do not exist social partners and other civil society organisations have to stimulate the debate.

7.8 Innovation and learning has a local base. The EESC underlines the involvement of regional and local actors in creating a Common European Area of Knowledge and their responsibility for taking on co-ownership of the Lisbon Strategy. In particular, city regions and metropolitan areas are important in this respect, but the participation of all other regions must also be

promoted. The EESC wholeheartedly supports the fact that one of the three priorities of the future cohesion policy is to encourage innovation, entrepreneurship and the knowledge economy.

8. **Participation of organised civil society – how major stakeholders can contribute**

8.1 The European Council urged the EESC to set up an interactive network of civil society initiatives with Member States' economic and social committees and other partner organisations aimed at promoting the implementation of the strategy[11]. This process is now underway. Cooperation on this opinion and the Summary report is an important step in this direction. Best practice and experience of organised civil society participation in actions and policies to achieve the knowledge society will be highlighted[12].

8.2 There is an urgent need to bridge the existing information deficit between the citizens and Europe, Their aspirations and concerns must be focused. A modern approach to communication and awareness raising is needed in order to involve, motivate and possibly convince the public and have citizens take responsibility. Press and media must also engage themselves more in the debate over the future of Europe. In this respect the Committee refers to the Commission Action Plan proposed by Ms Wallström, based on three principles "Listen, Communicate, Go Local"[13]. The conclusions of the Stakeholders Forum organised by the Committee in cooperation with the Commission on 7-8 November should be followed up.

8.3 Participation also means that private stakeholders must act and take responsibility through tangible contributions and actions. Private-led initiatives contributing to the Common European Area of Knowledge must be welcomed and supported by the public authorities.

8.4 The EESC would like to highlight the potential contribution of some of the major stakeholders:

- *Social dialogue* is an important tool in building the knowledge society. It is important to include SMEs in the dialogue. Life long learning, innovation and supplementary social protection are some of the important issues that can be addressed in the social dialogue.

- The *social partners* in many Member States have made important contributions, in particular through common declarations and collective bargaining agreements on lifelong learning. However, far from all workers are covered by such joint agreements. Although very diverse in nature, the actions have common strands such as the right for all workers

11 Idem.

12 A website has been opened http://www.esc.eu.int/lisbon_strategy/index_en.asp. More details on this proposal can be found in the EESC opinion "Improving the implementation of the Lisbon Strategy", points 6.4.-6.9 (OJ C 120 of 20.5.2005, page 79).

13 Action Plan to Improve Communicating Europe.

to participate in continuous training and the establishment of career development schemes and qualifications assessment frameworks. The implementation at national level of the framework agreement between the European social partners concluded in 2002 merits an evaluation.

– *Collective bargaining* can correct the market failures of firms that do not invest enough in training[14]. Through sectoral and nationwide collective agreements a level playing field is established, allowing enterprises to increase investment in training for lower-skilled workers too. Access to lifelong learning has increased by mutualising the finance of investment in human resources.

– *Businesses* are key actors to create more and better jobs in the Common European Area of Knowledge. They should anticipate and manage change by making strategic investments in knowledge generation and knowledge application, and openly report their actions in lifelong learning, innovation and research as well as in restructuring as part of their corporate social responsibility.

– *Finance and venture capital institutions* can supply private equity and venture capital and funds for innovative enterprises particularly SMEs and together with the public authorities develop integrated packages of support. They should make use of the new facilities offered by the Competitiveness and Innovation Programme (CIP)[15] and the European Investment Fund (EIF) and find new financial solutions.

– *Social economy organisations* based on solidarity can promote both economic and social innovations to create employment and combat social exclusion by integrating disadvantaged groups.

– *Non-formal learning organisations* outside of the public education system - for instance those run by the social partners or associations - have proved to be highly efficient in supplying and adapting lifelong learning structures and methods to enable all social groups to take part in the knowledge society.

– *Consumers* can favour and stimulate innovations and technologies aimed at improving quality of life with due regard to social and ethical consequences.

– *Young people* may particularly benefit as they are open to new knowledge and technologies. Within the Lisbon strategy they can contribute under the Youth Pact[16].

14 "Facing the Challenge", Report from the High Level Group chaired by Wim Kok, November 2004.

15 Proposal for a Decision of the European Parliament and the Council establishing a Competitiveness and Innovation Framework Programme (2007-2013), COM(2005) 121 final of 6.4.2005.

16 Presidency Conclusions, European Council, 22-23 March 2005, point 37 and Annex I.

Important areas for action are the creation of employment facilities for students in higher education and measures to reduce early school drop-outs.

– *The professions and self-employed workers* also have a role to play in the knowledge society through the introduction of access qualifications and life-long learning for their work areas.

– *Universities and higher education establishments* must participate actively as they are key institutions for progress towards the knowledge society. It is important to encourage cooperation between industry and academia in order to transfer the results of applied research and also to promote the transnational mobility of students.

– *The research community* can together with the Member States enhance the value of research as a profession, and involve researchers in cooperation across national borders, in accordance with the European Charter for Researchers and the code of conduct for the recruitment of researchers, thereby making research careers more attractive.

9. Four priority proposals

9.1 Create a positive macroeconomic policy framework for the knowledge society

9.1.1 At the summit the European Council endorsed a reform to be introduced in the Stability and Growth Pact. According to this reform macroeconomic stability and conformity with the rules remain a central concern[17]. However, redirecting public expenditure towards R&D and innovation is one of the relevant factors to be taken into account by the EU when assessing temporary public deficits that exceed 3 per cent or when defining adjustment trajectories.

9.1.2 Economic growth and employment are needed as they facilitate the achievement of most other policy goals and cushion the impact of reforms. However, current EU policy lacks sufficient focus on growth and employment. The policy mix set out in the Broad Economic Policy Guidelines is out of balance, since it is based on achieving stability at the expense of growth and focused mainly on supply-side measures. It neglects the fact that reforms to increase the potential for growth must be supplemented by measures to stimulate effective demand.

9.1.3 Also significant in this respect is the closer coordination of economic policies between Member States as well as linking macroeconomic dialogue to the tripartite summit of social partners and opening up in-depth discussions with the ECB.

17 The Committee is currently drawing up an opinion on Strengthening economic governance – The reform of the Stability and Growth Pact (ECO/160).

9.1.4 Against this background macroeconomic policies, namely budgetary and tax policies, should foster the knowledge society, particularly by giving priority to a demand pull for new technologies.

9.2 **Provide a framework and resources for lifelong learning**

9.2.1 The spring summit stated that "Lifelong learning is a *sine qua non* if the Lisbon objectives are to be achieved"[18].

9.2.2 It should be noted that the countries with the best economic and social performances have the highest percentage of the adult population in education and training, while the opposite is true of the poorest performers. The "second chance" principle should be recognised, and a contract suggested to all those who missed the opportunity for initial training the first time round. This could take different forms, e.g. offering training courses or "time vouchers" valid at any stage of life in order to refresh basic knowledge.

9.2.3 It is essential to make the conclusions of the summit reality. The EESC reiterates its call for a Europe-wide Charter for Lifelong Learning[19]. The EU and Member States together with the major stakeholders, have to determine the key priorities and actions, giving them a legal basis and providing sufficient financial resources. The Member States should commit themselves to implementing the Charter at all levels through "lifelong learning pacts" or similar arrangements. Roles and responsibilities of both the public and private sector should be defined within the context that lifelong learning is a service of general interest.

9.2.4 There is a need to invest substantially in all phases of lifelong learning, including early childhood. Member States should agree on a quantitative objective expressed as a percentage for investment in education including lifelong learning. However, the public budget alone will not meet the bill for education and training and has to be supplemented by collective or other agreements between employers and workers, by enterprise and by the individual according to his or her possibilities. Private and public stakeholders have a role to motivate and empower people to take part and make them responsible for adapting to changing circumstances.

9.2.5 The EU and Member States should also agree on a minimum level of resources for lifelong learning under the structural funds, for instance at least one third of the total[20]. The funds should focus on and support "lifelong learning pacts" which increase access to training for all workers as well as initiatives that are tailor-made for the most disadvantaged groups. Each Member State must demonstrate that it is using the European Social Fund to help implement the national reform programme.

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18 Presidency Conclusions. European Council 22-23 March 2005, point 34.

19 EESC opinion "Improving the implementation of the Lisbon Strategy" OJ C 120 of 20.5.2005, page 79).

20 37 per cent of total EU Structural Funds allocated to Ireland were spent on investment in human resources.

9.2.6 At local level, open learning centres, lifelong learning pacts or similar training schemes can be established in a broad partnership. Universities must also play a larger role in lifelong learning.

9.3 **User-friendly innovation and technology policies**

9.3.1 The EESC strongly supports the conclusions of the Spring summit with respect to pushing for the 7th RD framework programme to fill the technological gap and the need for Member States to develop comprehensive innovation policies that are to be supported by the CIP in order to promote the competitiveness of SMEs in particular. It also supports the proposal that Europe needs an active industrial policy through different technological initiatives[21].

9.3.2 Research programmes need closer monitoring and evaluation to make sure that resources are targeted to contribute to European innovative capacity. Innovation must be considered an all-embracing concept and focus not only on processes, products and technology but also on governance, sustainable development and economic answers to social issues in order to underpin the European model of society. Innovations should permeate all societal processes. Social and civil dialogue are important accompanying measures to further innovation. Involving workers and other stakeholders in the conception of new products and technologies will cushion the effects of restructuring.

9.3.3 High ambitions to foster good health, a sustainable environment, quality in urban and rural infrastructure, smart transport solutions, safe and reorganised workplaces and cultural heritage will bring forward new technologies and new innovative products and services. New technologies and innovation can thereby favour the quality of life and work, responding both to societal needs and the market, while also taking social and ethical consequences into account.

9.3.4 Europe needs to put much more emphasis on technological transfer, exploiting the results of the 7th framework programme and promoting an innovation-friendly market in order to increase competitiveness. EU and national mechanisms for dissemination of knowledge - whether research results, new technologies, innovative systems or learning methods - should be given priority and more resources used for this purpose. A new generation of public-private partnerships can be developed as a model for promoting the dissemination of knowledge. More efforts should be made to more rapidly transform technological development into commercial products and services.

9.3.5 The EESC calls for a more regular and systematic dialogue with key stakeholders at all levels in order to pursue and monitor user-friendly innovation and technology policies. The European Commission should support such an approach by issuing guidelines and

21 Presidency Conclusions European Council 22-23 March 2005, points 13, 14 and 16.

recommendations and also benchmarking good practice. In this context, it is important to promote industrial regions, technology parks and other innovative environments.

9.3.6 Particular attention must be paid to involving SMEs as well as social economy enterprises and responding to their needs, giving them access to RTD and research services as well as engaging them in RTD activities. SMEs have an important role to play in creating regional clusters of excellence. Introducing measures to increase the SME share of the public market must also be considered, and the successful US experience of providing support for new high-tech small enterprises can serve as a model.

9.3.7 The industry-led technology platforms launched in 2003 by stakeholders with the support of the Commission, are set to become powerful actors in EU research policy and a base for its industrial policy. The EESC suggests that industry should react positively to the demand of the European Commission that it play a still more active role in the technology platforms. However, the EESC also suggests that the platforms be open to social partners and other civil society organisations so that they can also take part in defining the research agenda.

9.4 **Social protection must facilitate the transition to the knowledge society**

9.4.1 A strong sense of job security is necessary to motivate workers to actively take part in the transition to the knowledge society. Flexibility has to be coupled with active labour market policies encouraging workers to participate in life long learning. The Danish experience of flexicurity may be an inspiring example.

9.4.2 New forms of social protection must be defined to facilitate the up-grading of skills and the occupational mobility of workers and their choices between work, training and family life, but also for new forms of work organisations and for transitions between different statuses. Through this, labour market contracts and conditions that threaten worker rights and have negative impacts on their ability to participate in the knowledge society can be avoided.

9.4.3 The Kok I[22] report suggested that employment insurance and social protection systems have to support flexibility by facilitating such transitions during the life-cycle of each individual person. For instance, new forms of work-life cycle insurance can be established, e.g. through setting up personal "learning accounts" partly funded by social contributions.

22 Report of the High Level Group on the future of the social policy in an enlarged European Union, May 2004.

9.4.4 The EESC suggests that the Social Protection Committee look into this matter, and should, *inter alia*, identify good practice and propose guidelines for such new forms of protection. The Committee will also contribute with its opinion on flexicurity[23].

Brussels, 14 December 2005

The President of the European Economic and Social Committee	The Secretary-General of the European Economic and Social Committee
Anne-Marie Sigmund	Patrick Venturini

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N.B.: Appendix overleaf.

23 *Flexicurity: The case of Denmark* (ECO/167), to be available in 2006.

APPENDIX

Annex II of the PRESIDENCY CONCLUSIONS
BRUSSELS EUROPEAN COUNCIL - 16 and 17 JUNE 2005

INTEGRATED GUIDELINES FOR GROWTH AND JOBS 2005-2008

1. Guarantee the economic stability for sustainable growth
2. Safeguard economic and budgetary sustainability, a prerequisite for more jobs
3. Promote an efficient allocation of resources, which is geared to growth and jobs
4. Ensure that the development of salaries contributes to macroeconomic stability and growth
5. Strengthen the consistency of macroeconomic, structural and employment policies
6. Contribute to the dynamism and smooth operation of EMU
7. Increase and improve investments in research and development, in particular in the private sector, with a view to establishing a European area of knowledge
8. Facilitate all forms of innovation
9. Facilitate the spread and effective use of ICTs and build a fully inclusive information society
10. Strengthen the competitive advantages of its industrial base
11. Encourage the sustainable use of resources and strengthen the synergies between environmental protection and growth
12. Extend and deepen the internal market
13. Ensure open and competitive markets inside and outside Europe, reap the rewards of globalisation
14. Create a more competitive business environment and encourage private initiative by improving regulations
15. Promote a more entrepreneurial culture and create a supportive environment for SMEs
16. Expand, improve and connect European infrastructures and complete priority cross-border projects
17. Implement employment policies aiming at achieving full employment, improving quality and productivity at work, and strengthening social and territorial cohesion
18. Promote a lifecycle approach to work
19. Ensure inclusive labour markets, enhance work attractiveness, and make work pay for job-seekers, including disadvantaged people and the inactive
20. Improve matching of labour market needs
21. Promote flexibility combined with employment security and reduce labour market segmentation, having due regard to the role of social partners
22. Ensure employment-friendly labour costs developments and wage-setting mechanisms
23. Expand and improve investment in human capital
24. Adapt education and training systems in response to new skill requirements

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