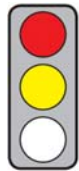


MAIN ISSUES

Objective of the Communication: The Commission wishes to establish a cross-sector industrial policy strategy for identifying and promoting key enabling technologies in the EU.

Parties affected: Industry and research institutions.



Pros: The introduction of an EU patent and the establishment of a European patent litigation system would promote research and development.

Cons: (1) The selection of key enabling technologies at state level assumes knowledge that politicians cannot possess.

(2) Supporting the development of close-to-market key enabling technologies leads to distortion of competition in both technologies and companies.

CONTENT

Title

Communication [COM\(2009\) 512](#) by the Commission of 30 September 2009: **Preparing for our future: Developing a common strategy for key enabling technologies in the EU**

Brief Summary

► Context and objective

- According to the Commission, key enabling technologies are of “systemic relevance” for the European economy and provide the basis for process, goods and service innovation (Clause 1). Therefore, a process is to be launched whose purpose is to identify and promote the key enabling technologies in the EU.
- The aim is to develop a strategy for the improved commercialisation and deployment of research results gained by publicly and privately funded R&D (research and development) activities in the EU.
- The research base for the development of key enabling technologies in the EU should be strengthened through “the right framework conditions and support instruments” (Clause 1). Synergy effects created by a better coordination of research promotion and joint action by Member States are assumed to be beneficial to European companies and very competitive high-tech markets.
- The Commission announces that it wishes first to exhaust the current policy framework for fostering key enabling technologies. In particular, it refers to the legal framework of state aid rules, trade policy and the access to financial means. Moreover, it intends to reinforce existing initiatives for direct action in the field of specific key enabling technologies (Clause 5).

► Identifying “key enabling technologies”

- Key enabling technologies provide great potential for innovation in the fields of both processing and production. Due to their strong growth they have a substantial impact on competitiveness. They help to increase performance, amongst other things in the field of information and communications technologies (ICT), in the chemical industry, energy supply, medical technology, automotive industry, aeronautics and space research.
- To date there is no consensus amongst Member States as to which technologies are key enabling. In its Communication and its accompanying Working Document [[SEC\(2009\) 1257](#)] the Commission refers to nanotechnology, micro- and nanoelectronics (including semiconductors), photonics, biotechnology and advanced materials as being relevant (Clause 2).

► Innovation barriers

- According to the Commission, the major weakness is that results from research funded by the EU are not capitalised effectively, but instead are commercialised mainly in “other regions” outside Europe (Clause 3).
- Due to the lack of a coherent technology policy in the Member States, the benefits of economies of scale and scope cannot be released. Different requirements and standards, as well as different rules regarding public procurement, lead to fragmented markets in Member States and to innovation barriers as side effects (Clause 3).
- The Commission points out that there is a lack of public understanding of the dimension of key enabling technologies in the EU, which can delay the introduction of new technologies. Moreover, there is a shortage of skilled labour tailored to the “multidisciplinary nature of key enabling technologies” (Clause 3).

► Fostering approaches

The Commission recommends addressing selected policy areas “for an effective industrial deployment of key enabling technologies”.

– European patent litigation system

The Commission emphasises the importance of “setting up a Community patent and a unified patent litigation system” (Clause 4). Further, it should be ensured that intellectual property rights are protected adequately so as not to jeopardise the development of key enabling technologies.

– Financial innovation incentives

- A key objective of public support of research in the EU Framework and national programmes should be “to ensure that the flow of innovation is maintained and that technology adoption is facilitated”. In order to promote key enabling industries, publicly supported programmes should be reinforced (Clause 4.1).

- The Commission intends to focus more strongly on state aid as an “appropriate instrument” for fostering R&D and innovation. It is seeking a review of the Community framework for state aid for research, development and innovation ([2006/C323/01](#)), in which the criteria for the legitimacy of R&D aid are defined (Clause 4.4).

- Financial investments in high-technologies are to be further stimulated. It must be ensured that sufficient venture capital is available. The European Investment Bank is encouraged to extend its loan policy using and further developing “appropriate” instruments such as risk sharing finance facility (Clause 4.9).

– Improved coordination

Joint strategic programming which encompass the European, national and regional level is to help avoid “uneconomical duplications” and promote “the transfer of research results into marketable products” (Clause 4.3).

- In detail the Commission proposes:

- that joint calls be more focused on high-potential key enabling technologies for wide deployment in industries;

- striving for joint innovation programmes between Member States as a basis for the development of “technology policies” which promote the cooperation between European companies and unlock the benefits of economies of scale and scope;

- promoting the joint planning and realisation of cost-intensive demonstration projects before new key enabling technologies are introduced: industries and users could be involved earlier in order to make such projects more efficient.

– Improved frame conditions

- The technology transfer between research institutions and the industries and EU-wide supply chains, which generate value in the form of products and services at various stages, should be strengthened. In particular, this is to be done by providing small and medium-sized enterprises with easier access to key enabling technologies developed in the EU and by supporting regional innovation clusters and networks (Clause 4.2).

- According to the Commission, the demand for technological innovation needs to be promoted. It refers to its innovation policy initiative, the Lead Market Initiative [[COM\(2007\) 860](#); cp. [CEP Policy Brief](#), in German only] calling for action plans to “promote markets with potential”. A more targeted approach for public procurement could also help, such as through the instrument of “pre-commercial procurement” relating to the research and development phase before a technology is introduced into the market. Thus the procurement of public tenders for R&D services could become possible prior to their market maturity (e.g. prototyping development) (Clause 4.6).

- Improved trade conditions for key enabling technologies are to be ensured through bilateral and multilateral agreements in order to avoid, for instance, market distortions through direct or indirect subsidies in third countries (Clause 4.8).

- According to the Commission, the combination of climate protection measures and the fostering of key enabling technologies is a potentially profitable synergy which could help reduce EU costs for fighting climate change (Clause 4.5).

- The development of skill strategies is to contribute to the prevention of any shortage in well-trained workers in the field of technology (Clause 4.10).

► High-level expert group

– The Commission proposes setting up a high-level expert group “tasked with developing a shared longer term strategy for key enabling technologies” by the end of 2010 (Clause 5). Its job would be to address the Commission’s approach to funding policy and to refer to the summary report of the high-level expert group for key enabling technologies of 2005 (“Creative system disruption: towards a research strategy beyond Lisbon”).

– The high-level expert group is to cooperate closely with already existing expert committees. The Commission, for instance, refers to the European Institute of Innovation and Technology (EIT) and the European Technology Platforms (ETP), which equally wish to foster synergy effects in education, research and innovation.

– First and foremost, the high-level expert group is to:

- examine the competitive position of the relevant technologies in Member States;

- analyse the R&D capacities for key enabling technologies in the EU;

- make recommendations for an improved deployment of key enabling technologies in the EU.

Changes Compared to the Status Quo

- ▶ Strategic-oriented approaches have been developed by the Commission only in single technology branches, such as for life sciences and biotechnology [[COM\(2002\) 27](#)], nanosciences and nanotechnology [[COM\(2005\) 243](#)], energy technologies [[COM\(2007\) 723](#)] and ICT [[COM\(2009\) 116](#)] (Clause 1).
- ▶ An EU patent and a unified patent litigation system does not yet exist in Europe.

Statement on Subsidiarity

The Commission does not address the question of subsidiarity.

Policy Context

In its Communication the Commission refers to the discrepancy between the EU on the one hand and the USA and Japan on the other in terms of the deployment of key enabling technologies (Clause 3). The high-tech share deployed in industry is 50% higher in the USA compared to the EU (12% in the EU compared to 18.3 % in the USA). The R&D intensity in high technology, which reflects the proportion between R&D expenditure and the production value, is 24.8 % in the EU compared to 30.1 % in the USA. That equals an approximately 20% higher R&D intensity in the USA [Science, technology and competitiveness (STC) key figures report 2008/2009 (COM-Directorate General Research), p. 40 et seq.].

On 28. May 2009, the Competitiveness Council pointed out “that it is of particular importance to maintain strong R&D investments in high-tech industries in Europe” and that it is looking forward “to the Commission's initiative to develop a pro-active policy for key enabling high-tech industries” (Council Document [10527/09](#), Clause 16).

On 4. December 2009, the Competitiveness Council agreed on the Proposal for a Regulation of an EU patent (Council Document [15149/09](#)) and called for a European patent litigation system in its Council Conclusions. The language and translation issue regarding EU patents has hitherto been excluded and is still subject to the Commission's Proposal.

Options for Influencing the Political Process

Leading Directorate General: DG Industry

ASSESSMENT

Economic Impact Assessment

Ordoliberal Assessment

From the very outset **the Commission** is mistaken in its **conviction** that a high-level expert group could **select** key enabling technologies of “systemic relevance” for the European economy. For technologies that are really useful don't tend to succeed until they start competing with their competitors. This process of discovery cannot replace a planned-economy procedure, as the Commission is now proposing. Quite simply, such a group lacks the appropriate benchmarks for identifying key enabling technologies. Therefore, any selection at state level **constitutes an arrogation of knowledge**.

In the past, such arrogation cost taxpayers dearly. A quite impressive example is the excessive funding of the Transrapid technology in Germany, which in the end was not able to establish itself.

Moreover, **it is highly likely that in particular political considerations will influence the selection process**. Even the Commission itself mentions that Member States have very different perceptions of what is to be considered a key enabling technology. During the selection process Member States will therefore make sure that those technologies are deemed key enabling which provide a basis for their home country industries and thus secure jobs.

The increased fostering of key enabling technologies through publicly supported programmes called for by the Commission (incl. the Lead Market Initiative [[COM\(2007\) 860](#); cp. [CEP Policy Brief](#)]) **distorts competition between both the different technologies and the companies behind them**, since only those companies receive money which are active in the respective research field.

In principle, supporting basic research financially is justified, since private funding would often not be found. However, the striven for funding of research in the field of key enabling technologies does not concern basic research. After all, it is precisely through their practice-oriented use that the selected technologies are supposed to distinguish themselves. In fact, in its Community framework for state aid for research and development and innovation ([2006/C323/01](#)) the Commission deliberately favoured an increased eligibility for funding basic research and a decreased eligibility for funding close-to-market research. Somewhat disquieting is the fact that the Commission now obviously intends to revise the Community framework in order to foster close-to-market key enabling technologies.

Applied research is carried out by the private sector only if a sufficient protection of intellectual property is ensured. It is therefore **to be explicitly welcomed that the Commission is promoting an EU patent and a unified patent litigation system in Europe**.

Impact on Efficiency and Individual Freedom of Choice

The improved coordination of European, national and regional research policy, as aspired to by the Commission, only increases efficiency where targets are set, for instance in the implementation of specific basic

research projects or the superstructures for certain experiments, such as the CERN particle accelerator in Geneva. It is here that the benefits of economies of scope and scale can really be released.

Where, on the other hand, basic research is open-ended, excessively rigid standardisation can impede the competition of ideas from the start. The aimed for coordination should therefore be limited to projects where the deployment of benefits of economies of scope and scale is ensured.

It is not evident which added value a new high-level expert group would generate, as closer cooperation between existing committees is already planned. Therefore, its establishment should be waived.

Impact on Growth and Employment

The targeted improvement of protecting intellectual property increases the incentives for research and development, which in turn boost the potential for innovations in the EU and thus growth and employment.

Impact on Europe as a Business Location

Besides the improved patent protection, the prospect of additional funds and venture capital programmes increases the attractiveness of Europe for research-intensive companies. Nevertheless, less research-intensive companies would also have to finance such a policy through an increased tax rate.

Legal Assessment

Legislative Competence

Supplementary to the Member States' measures the EU may foster research and technological development (Art. 179–187 TFEU, ex-Art. 163–171 TEC). This promotion of an improved deployment of industrial potential is targeted at also in industrial policy (Art. 173 (1) TFEU, ex-Art. 157 (1) TEC).

Subsidiarity

Unproblematic.

Proportionality

Unproblematic.

Compatibility with EU Law

The EU is entitled to strengthen the scientific and technological basis of industry in the EU and to promote its international competitiveness (Art. 179 (1) TFEU; ex-Art. 163 (1) TEC). The reference to “bases” implies that the R&D promotion is to be applied in the run-up to competition and not in close-to-market fields, in order to avoid distortion of competition (cp. ECJ, C-249/85, No. 16). This needs to be taken into close consideration when developing a EU strategy for key enabling technologies with the target to promote technology transfer and commercialisation.

Compatibility with German Law

Currently not foreseeable.

Alternative Action

The Commission should waive the planned-economy procedure of identifying key enabling technologies and providing them with special funding.

Possible Future EU Action

- ▶ The Commission wishes to assess the Community framework for research, development and state aid (2006/C323/01) in 2010, even prior to the summary report by the high-level expert group. In particular, it intends to examine whether the scope for the granting of R&D state aid suffices in order to stimulate innovations in the Member States appropriately (Clause 4.4).
- ▶ The Commission announces to conduct a study on the cost-benefit analysis of establishing 450mm semiconductor wafer production in the EU and on its impact on the competitiveness of the European economy (Clause 4.3).

Conclusion

The selection of key enabling technologies at state level as intended by the Commission assumes a degree of knowledge which politicians do not have. Moreover, the planned fostering of the development of close-to-market key enabling technologies leads to distortion of competition between both technologies and companies. It is to be expressly welcomed that the Commission promotes the introduction of an EU patent and a unified patent litigation system in Europe. This increases the incentive to invest in research and development.