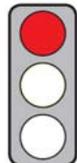


## KEY ISSUES

**Objective of the Communication:** The Commission designates six key technologies which are essential for the EU and develops an industrial policy strategy for their promotion.

**Parties affected:** Industry and research institutes.



**Pro:** The subsidies for key enabling technologies should be better coordinated, deployed more efficiently and not increased.

**Contra:** (1) A political selection of key enabling technologies is not more successful than selection through competition.

(2) The more one moves away from funding basic research, the more the funding of key enabling technologies distorts competition.

(3) The planned promotion of competitive manufacturing goes too far in terms of economy, it exceeds the EU's competencies and infringes EU state aid rules.

## CONTENT

### Title

**Communication COM(2012) 341** of 26 June 2012: A **European strategy for Key Enabling Technologies** – A bridge to growth and jobs

### Brief Summary

#### ► Definition and significance

- Key Enabling Technologies (KET)
  - enable process, goods and service innovation in various economic sectors;
  - will “drive the development of entirely new industries in the coming years” (p. 3);
  - create economic growth and jobs and increase competitiveness;
  - are of “systemic relevance” for the whole economy (p. 3);
  - require intense research and development activities (R&D), highly skilled workers and high capital investments.
- The Commission identifies six KETs for the EU: micro-/nanoelectronics, nanotechnology, photonics, advanced materials, industrial biotechnology and advanced manufacturing technologies.

#### ► Objectives

- In the Communication the Commission expounds a European KET strategy. This should result in a better coordinated and more efficient promotion of KETs through the EU and Member States.
- The Commission suggests explicitly that there should be no increase in public KET funds.
- At the same time, the Commission emphasises that the KET framework conditions should ensure “the efficient functioning of competitive markets” at EU, national and regional level during all stages of KET-related research, development and innovation (R&D&I) (p. 7).
- The proposed measures target three phases (“pillars”) of technological development with increasing technology readiness levels (TRL), which follow on from basic research (see annex):
  - Pillar 1: technological research
  - Pillar 2: product demonstration
  - Pillar 3: competitive manufacturing activities.

#### ► Obstacles to innovation

- According to the Commission, although the EU is still a “global leader in KETs development” (p. 4), there is a gap between basic KET knowledge generation and its commercialisation into goods and services (“valley of death”, p. 4).
  - KET-related production is decreasing while patents are being increasingly used outside the EU.
  - The Commission is concerned that this situation could soon threaten growth and employment and, in the long term, harm KET knowledge generation in the EU.
- The Commission identifies the following causes for the lack in KET commercialisation:
  - The fragmentation of the EU internal market due to national rules and “discriminatory enforcement and other forms of arbitrage”, e.g. market entry barriers, impair KET.
  - There is not enough cooperation between all participating players and a lack of EU-wide coordination.

- KET demonstration projects and KET-based products are linked to high risks due to their high capital intensity, long development times and complex production processes.
- There is hardly any risk capital available for start-ups and small and medium-sized enterprises.
- Public funds could be used more efficiently and be better coordinated.
- Most innovative products nowadays (smart phones, electric cars) necessitate several KETs simultaneously.
- Therefore an “integrated approach” for an interdisciplinary KET support is needed.
- There is a shortage of sufficiently skilled workers and entrepreneurs capable of “handling the highly multi-disciplinary nature of KETs” (p. 6).

► **Integrated support**

- EU and Member State support for KETs should be better coordinated. To this end, the Commission intends to seek consultation with an external expert group for KET issues (“KET Issues Group”).
- In order to use EU funds in a more balanced and efficient manner during all stages of KET and R&D&I activities, the following instruments should be better matched and be used in combination for KET supporting projects:
  - the EU funding programme “Horizon 2020”, which will be providing 80 billion Euros for the promotion of research and innovation from 2014 to 2020;
  - the structural funds and
  - credit supply by the European Investment Bank (EIB).
- Since different KETs can have a positive effect on each other’s development, the KET support measures under “Horizon 2020” should if possible combine several KETs transversally.
- The Commission intends:
  - to deploy 6.663 billion Euros from the programme “Horizon 2020” for KET support; and
  - to evaluate in 2012 ongoing transversal KET activities in order to coordinate them with other programmes (e.g. structural funds) and to develop a perennial work programme.

► **State aid**

- The Commission stresses that “undistorted competition is the most effective driver to invest in KETs” (p. 8). In particular, the crowding-out of private funding and preserving inefficient firms are to be avoided. Therefore, the public funding of KET must be in line with EU laws on state aid.
- By “modernising” EU state aid law, the Commission wishes to facilitate state aid which has only a “limited impact on competition” [p. 12; Communication COM(2012) 209].

► **Qualified workforce**

- In view of the looming shortage of qualified personnel in the KET sector, the Commission wishes to:
- foster specialist and entrepreneurial qualifications for product demonstration projects;
  - promote the education of researchers; and
  - publish a Communication on KET-related qualification possibilities by the end of 2012.

► **KET observatory**

- There are no reliable data on the development and distribution of KET in the EU. Therefore, in 2013 the Commission intends to set up a monitoring mechanism whose purpose it will be to provide EU, national and regional policymakers with information to help them better develop and implement industrial policy measures.
- To this end, the monitoring mechanism is to:
  - follow up, measure and appraise the deployment of KETs in the EU
  - collect and compare market data on supply and demand in the KET sector both inside and outside the EU.

### Statement on Subsidiarity by the Commission

The Commission does not address the issue of subsidiarity.

### Policy Context

In 2009, the Commission presented its first considerations regarding a common EU strategy for KETs [Communication COM(2009) 512, s. [CEP Policy Brief](#)]. The EU Framework Programme “Horizon 2020” serves to implement the flagship initiative “Innovation Union” [COM(2010) 546; s. [CEP Policy Brief](#)], which is part of the strategy “Europe 2020” [COM(2010) 2020; s. [CEP Policy Brief](#)]. The latter aims to create economic growth and jobs as well as to enhance the competitiveness of the EU.

### Options for Influencing the Political Process

Leading Directorate General: DG Enterprise and Industry  
 Consultation procedure: A consultation procedure is not provided.

## ASSESSMENT

### Economic Impact Assessment

#### Ordoliberal Assessment

**The Commission's approach to politically select key enabling technologies** which are of "systemic relevance" to the European economy and to then specifically support these in the long-term **is highly problematic, since the political process** through which these technologies are defined **can only be based on the knowledge that is available today**. Useful technologies only prevail in the competition with competing practices whose results cannot – or at best only to a limited extent – be anticipated by politicians.

Two experiences support a fundamentally sceptical attitude towards the growth-enhancing effect of subsidy policies. Firstly, subsidies are often not successful in facilitating a breakthrough for innovations. For instance, in Germany the Transrapid technology was highly subsidised but in the end it could not be pushed through. Secondly, ground-breaking innovations normally go hand in hand with structural economic change, which creates significant adjustment burdens to the individual affected. The incentive for state actors to provide subsidies in a structure-maintaining manner instead of a structure-changing manner is high. One example for this is the long-term subsidising of coal mining or the considerable and continuing subsidising of agriculture.

With the selection of key enabling technologies, the Commission now holds an instrument with which to limit the political room for manoeuvre in the field of research funding. However, the Commission is even less able to achieve its declared objective to use public funds more efficiently and in a better coordinated manner, the more it identifies special fields for specific funding. The latest statements by the Commission on bioeconomy [COM(2012) 60] and on eco-innovation [COM(2011) 899, s. [CEP Policy Brief](#)] in view of the overall funding objectives seem more like an undifferentiated allocation of funds than targeted policy. **It is positive that the Commission does not demand an increase in KET funding, since a larger funding volume would be accompanied by the danger of a lower target-orientation.** Additionally, it should demand that Member States and the EU delete unproductive subsidies.

**The subsidising of key technologies distorts competition** both between different technologies and between the enterprises behind these technologies, **as only those enterprises receive money which are active in the** – ultimately politically determined – **research fields.**

The fact that the provision of funds must be in line with the EU rules on state aid, as the Commission stresses, goes without saying. **It is highly problematic that the Commission wishes to change the rules on state aid in order to facilitate state aid that can have an impact on competition** – though to a "limited" degree. It is to be feared that a trade-off between politically desirable entrepreneurial activities in the field of key technologies and the acceptance of a "limited" impact on competition through state aid will too often be at the expense of competition.

Innovative behaviour in Member States differs widely. In the EU an average of 108 patents per 1 million citizens were registered with the European patent office in 2010, 266 in Germany and 306 in Sweden, but only 10 in Portugal and less than two in Bulgaria. Hence, in selecting fundable projects, not only pure innovation-related economic criteria will have to play a role, but also regional and developing policy considerations. This applies all the more as the Commission itself places the funding of key technologies into the context of cohesion policy.

In principle, the funding of basic research can be justified, as private economic funding would often not be available. Since in practice it is not always possible to differentiate precisely between basic research and applied research, in several cases the application-oriented support of technological research (pillar 1) must also be accepted. Plants for product demonstration (pillar 2) serve to test new technologies under real application conditions. Normally, this is an entrepreneurial task, as the uncertain success of a demonstration is also faced with pioneer profits in the case of a technological lead. Public support is not normally provided in this case.

**Extending support also to the competitive production (pillar 3) definitely goes too far.** For which entrepreneurial activities then remain in the domain of the exclusive responsibility of entrepreneurs where even competitive production is funded by the public purse?

#### Impact on Efficiency and Individual Freedom of Choice

The causes mentioned by the Commission for insufficient commercialisation of KETs in the EU – the fragmented internal market and market entry barriers, insufficient co-operations and capital intensity, duration and complex production processes in KET production – do not refer to special problems in the development of key enabling technologies. Capital-intensive, time-consuming and complex production processes exist in many sectors. They cannot serve as an excuse for a state funding policy. According to the Commission, the allegedly "fragmented" internal market is simultaneously the "largest integrated market in the world that is receptive to innovation, with world leading industries" (p. 5). The fact that the "discriminatory enforcement" of rules and "other forms of arbitrage" (p. 5) can harm the internal market is a truism. Unfortunately, the Commission does not substantiate which procurement and state aid infringements exactly harm the development of key technologies and to what extent, or why the existing tools do not suffice to combat them. Due to the language diversity alone, information procurement through cooperation opportunities is more expensive than in other business locations. However, this does not apply to key enabling technologies, either. The Commission should have substantiated with which measures it intends to facilitate more cooperation.

### Impact on Growth and Employment

The promotion of basic research has a positive impact on growth and employment in the long term. This would apply all the more if the Commission had in addition called for the elimination of unproductive subsidies. Subsidies for “competitive manufacturing activities” (pillar 3) will probably soon become maintaining subsidies for non-competitive enterprises. This will harm growth and employment in the long term.

### Impact on Europe as a Business Location

The funds increase the attractiveness of Europe for research-intensive companies. However, those companies which are not so research-intensive would have to co-finance this through increased taxes so that the total effect is unclear.

## Legal Assessment

### Competency

The EU may – in addition to measures of the Member States – promote research and technological developments (Art. 179–187 TFEU). Moreover, it may foster innovation, research and technological development in order to make better use of the industrial potential of ensuring competitiveness (Art. 173 (1) TFEU). “Research” as a method-led generation of knowledge comprises both basic research and application-oriented research, independent of their economic usability; “technological development” is technology-related research with regard to its economic application right through to the creation of pilot or demonstration plants (cp. Art. 179 (3); *Ruffert*, in: Calliess/Ruffert, TEC/TFEU Commentary, 2011, Art. 179 Nos. 1-3). However, beyond this pre-competitive field, the EU may not promote commercially usable products, processes or services (*Mönig*, in: Lenz-Borchardt, EU Treaties, 2010, Art. 179, No. 39). **The promotion of “competitive manufacturing activities” (3. pillar) is therefore not permissible.**

### Subsidiarity

Unproblematic.

### Proportionality

Unproblematic.

### Compatibility with EU Law

State aid is generally prohibited (Art. 107 (1) TFEU). The conditions according to which Member States may exceptionally grant state aid for R&D&I (Art. 107 (3) lit. c TFEU) are stipulated by the Community framework for state aid R&D&I (OJ C 323 of 30 December 2006, p. 1 et seq.) and the General block exemption Regulation (No. 800/2008). Accordingly, R&D&I aid for research and development projects are admitted only if they serve basic research, industrial research or experimental development (Nos. 2.2. lit. e-g and 5.1.1. Community framework; Art. 30, 31 (2) General block exemption Regulation). These R&D&I activities must be limited to the pre-competitive area. The experimental production and testing of product processes and services is explicitly only eligible for state aid “provided that these cannot be used or transformed to be used in industrial applications or commercially”. **State aid for the promotion of “competitive manufacturing activities” (pillar 3) go beyond this scope and are therefore not compatible with current EU state aid rules.**

### Compatibility with German Law

Unproblematic.

## Conclusion

In view of the fact that the EU’s funding policy is not very systematic, it is at least positive that subsidies are to be better coordinated, deployed more efficiently and not increased. However, the Commission’s approach to select key enabling technologies politically and to promote them specifically is all in all highly problematic, as the political process can only be based on the knowledge that we have today. The more one moves away from supporting basic research, the more the funding of key enabling technologies distorts competition. The planned promotion of competitive manufacturing activities goes too far in economic terms, exceeds the competencies of the EU and infringes the EU state aid prohibition. Highly problematic is the fact that the Commission wishes to amend state aid rules in order to facilitate state aid which has a – if only limited – negative impact on competition.