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PART 3/9

**COMMISSION STAFF WORKING DOCUMENT**

**EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT REPORT**  
*Accompanying the document*

**Proposal for a European Regulation establishing the Joint Undertakings under Horizon  
Europe**

**European Partnership for Key Digital Technologies**

{COM(2021) 87 final} - {SEC(2021) 100 final} - {SWD(2021) 37 final}

<b>Executive Summary Sheet</b>
Impact assessment of a potential institutionalised European partnership on key digital technologies
<b>A. Need for action</b>
<b>What is the problem and why is it a problem at EU level?</b>
<p>‘Key digital technologies’ (KDTs) are electronic components and systems that underpin all digital products and services. They are viewed as key because they are the basic building blocks of digital systems.</p> <p>If the EU does not maintain its leadership in electronic components and systems, it risks losing its strong market position in sectors such as automotive, healthcare, industrial manufacturing, aerospace and security.</p> <p>It also risks being a follower in emerging paradigms and technologies, such as artificial intelligence (AI) and edge computing, and associated markets which are creating demand for electronic components and systems that will need to exhibit levels of performance that differ from those available today.</p> <p>A major problem the EU would face is security of supply of trusted, safe and secure component technologies for critical infrastructures and industrial sectors that are vital for the economy.</p> <p>The non-alignment of these KDTs with the EU’s political priorities would deprive it of a major instrument for leveraging the digital transformation in addressing its societal and environmental goals.</p>
<b>What should be achieved?</b>
<p>An R&amp;I effort of sufficient scale and with a sufficient degree of coordination to assemble a critical mass of resources, organise multiple competences and interests, and direct them towards a common agenda with the following goals to be achieved by 2030:</p> <ol style="list-style-type: none"> <li> <p><i>Reinforce the EU’s technology sovereignty in electronic components and systems to support future needs of ‘vertical’ industries and the economy at large</i></p> <p>Ensure that the EU stays at the forefront of technology in advanced electronic components and systems contributing to resilient strategic value chains. This will be increasingly critical as digital transformation unfolds and digital technologies become more pervasive across sectors.</p> <p>Greater sovereignty should translate into a doubling in the value of the design and production of electronic components and systems in the EU by 2030, in line with its weight in products and services in general.</p> </li> <li> <p><i>Establish EU scientific excellence and innovation leadership in emerging components and systems technologies</i></p> <p>Further miniaturisation towards physical limits, the rapid penetration of AI, and the emergence of edge computing and alternative computing paradigms open new opportunities for electronics components and systems and their applications. A solid scientific base in emerging areas can enable the EU to seize such opportunities. SMEs and start-ups active in emerging technologies can benefit from and help shape new ecosystems.</p> <p>SMEs should account for least a third of the total number of participants in a KDT initiative and receive at least 20% of public funding.</p> </li> <li> <p><i>Ensure that components and systems technologies address the EU’s societal and environmental</i></p> </li> </ol>

### *challenges*

EU and national public authorities would play an essential role in a coordinated initiative ensuring its alignment with political priorities. Electronic components and systems technologies should provide the right levels of trust and privacy, and contribute to EU environmental objectives.

The initiative would target a reduction in energy consumption of 32.5% by 2030<sup>1</sup>.

### **What is the value added of action at the EU level (subsidiarity)?**

Electronic components and systems underpin industrial value chains that have significant social and economic impact across Europe.

The fast pace of technological progress in the industry, coupled with the fact that the United States and Asian countries are investing massively in order to be at the cutting edge and to minimise their dependencies on other regions, demands a coordinated response at EU level.

No single country or organisation would be able to deliver on the above objectives. Only mobilisation at EU level, involving Member States and industry, will ensure the necessary strategic approach and critical mass of resources, competences and interests.

### **B. Solutions**

#### **What are the various options to achieve the objectives? Is there a preferred option or not? If not, why?**

The following options were considered as means to support R&I:

- traditional calls under the framework programme (baseline option);
- a co-programmed European partnership (option 1); and
- an institutionalised European partnership under Article 187 TFEU (option 3).

An institutionalised European partnership is the preferred option, as it would ensure that the wider electronic components and systems industry takes an active role in setting the R&I agenda, together with public authorities (at EU and national levels), to meet the above-mentioned goals. It would enable sustainable commitment from the partnership members over an agreed 7-year programme and provide a stable structure for efficient implementation and for coordination with related initiatives. Interaction would be sought in particular with digital-centric partnerships (e.g. photonics, EuroHPC, SNS, AI, data and robotics) and application areas (health, automotive, manufacturing, space).

The assessment found that this option provides the most ‘directionality’ (ensuring alignment with an R&I agenda) and ‘additionality’ (securing leveraging effects).

#### **What are different stakeholders’ views? Who supports which option?**

When Member States were consulted on Horizon Europe partnerships, 96% considered a partnership on KDT relevant for their national policies and priorities, and for their industry, research organisation and universities.

In the open public consultation, 82% of respondents indicated that a KDT initiative would be relevant or very relevant for securing access to trusted components and systems. In particular, this view was

<sup>1</sup> Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency (OJ L 328, 21.12.2018, p. 210).

supported by industry associations, universities, RTOs, Member States and large companies.

Many respondents (over 40%) found the institutionalised partnership the most suitable option. This represents a balanced cross-section of industry (large firms and SMEs), research organisations and Member States. Stakeholders interviewed for the study supporting the impact assessment also strongly backed this option.

Minority views (e.g. from research organisations) indicated that this option carried a risk of greater complexity. However, the harmonisation and simplification of procedures and practices are addressed in the proposed initiative.

### **C. Impacts of the preferred option**

#### **What are the benefits of the preferred option (if any, otherwise of main ones)?**

A partnership based on Article 187 TFEU could:

- support an EU strategic R&I agenda (SRRIA) on electronic components and systems technologies, aligning EU, participating states' and industry priorities to achieve a critical mass;
- count on upfront contribution commitments from public (EU and national) and private members in the partnership;
- provide a centrally managed structure that supports the long-term engagement of private members for the implementation of an ambitious programme; and
- deliver a high leverage of 1:3 combining EU financing with contributions from Member States and industry (€1 from the EU, €1 from participating states, €2 from private members), for the mobilisation of a critical mass of R&I resources.

#### **What are the costs of the preferred option (if any, otherwise of main ones)?**

As a future KDT initiative would adopt the current ECSEL structure, the cost of implementing the preferred option is the running cost of a joint undertaking office for the period of the initiative. This cost is largely offset by the benefits mentioned above, in particular the leverage effects of co-financing to reach the scale of resources necessary to address the ambitious goals. The ECSEL joint undertaking would be adapted to the KDT partnership and overall implementation costs would remain the same.

#### **What are the impacts on SMEs and competitiveness?**

One recommendation from the interim assessment of ECSEL is to stimulate more active involvement by SMEs. The focus on emerging technologies and the objective of building design capacity (areas in which SMEs are particularly active) is likely to attract a higher number of small companies to the initiative in more relevant roles. Specific activities are envisaged (e.g. technology access and experimentation) to involve small suppliers and users in the ecosystem.

#### **Will there be significant impacts on national budgets and administrations?**

The KDT partnership is based on a tri-partite model (Commission, Member States and industry) with financial contributions and administrative involvement from participating states (Member States and associated countries). This model is currently used successfully in the ECSEL joint undertaking.

#### **Will there be other significant impacts?**

In the development and adoption of electronics components and systems technologies, fundamental rights will be taken into account, in particular citizens' safety, security and privacy.

**Proportionality?**

The preferred option provides all the elements to achieve the objectives and does not go beyond what is necessary.

**D. Follow-up**

**When will the policy be reviewed?**

The partnership will be reviewed regularly at project, technology/sector and programme levels. A mid-term evaluation by an independent panel of experts is planned after 3 years of operation. Regular evaluations will assess progress with respect to the initiative's objectives, expected impacts and contribution to EU policy priorities.