Position paper
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CSC's feedback on the European Commission's proposal for a Cloud and AI Development Act

EU technological sovereignty requires high-value data centres and strategic development of critical capabilities

CSC supports the objectives of the proposed regulation to strengthen the EU's technological sovereignty and to address public sector dependencies on third-country providers in cloud and AI services. It is important to maintain the level of ambition of the proposal throughout the legislative process. A key issue is to define which parts of the value chain should remain under European control. Of particular importance is the question of how to promote European ownership of data, so that the value generated from data can be retained in Europe and so that the digital services we use are built on responsibly developed artificial intelligence. This is critical for competitiveness, technological sovereignty and democracy.

It is essential to ensure that Europe continues to make long-term joint investments in computing, data and skills infrastructures, taking into account the entire value chain, including semiconductors as well as the horizontal capabilities of individuals and organisations. Technology alone does not create value; it must be complemented by well-managed data and strong, cross-cutting skills and competences throughout society. For this reason, institutional structures and legislation should also be systematically developed to enable the emergence of broader ecosystems that foster innovation, collaboration and sustainable competitiveness. Converging technologies cannot be turned into European value without enabling structures.

Remarks on the research, development and deployment activities for the cloud and AI ecosystem (Title II)

The cloud and AI leadership initiatives pursue a number of important objectives, including the development of energy-efficient data centre technologies, the integration of quantum computing technologies into cloud and AI computing infrastructures, and the testing of energy-efficient semiconductor and quantum computing prototypes. It is important to ensure that these initiatives are closely aligned with other EU-funded RDI activities, particularly those implemented through the EuroHPC Joint Undertaking and the Chips Joint Undertaking, and that the overall funding landscape forms a comprehensive and coherent whole.

More broadly, Europe's technological sovereignty depends on developing computing, data, AI, quantum, semiconductor, and connectivity capabilities, together with the associated skills base, as a single interoperable ecosystem. Today, responsibility for these capabilities remains distributed across multiple programmes, governance structures and policy communities. While such arrangements have supported technological development, they can also make it more difficult to realise synergies across domains. Europe should therefore strengthen mechanisms that support horizontal coordination and strategic alignment across interconnected technology and policy

areas. This means that decision-making and governance related to these capabilities must be closely coordinated and mutually reinforcing. The same principle applies to regulation: whenever new legislation is introduced or existing legislation is revised, efforts should be made to ensure that the regulatory framework, including legislation made before the digital age, actually serves the strategic goals of the EU, being coherent, consistent and fit for the digital age.

Research, development and deployment activities in the cloud and AI domains require a broad and robust skills base to support them. Developing this skills base involves not only strengthening technological expertise but also systematically building an understanding of technology as a horizontal competence that is relevant across all sectors of society. Achieving this requires close cross-sectoral collaboration in the design and implementation of skills development initiatives.

World-class research infrastructures, such as the EuroHPC supercomputers and AI Factories, play an important role in skills development. They help create attractive research environments that draw top talent to Europe and provide their users with new opportunities for learning and capacity building. At the LUMI AI Factory, operated by CSC, these opportunities include tailored customer training and user support, competence centres, public-private partnerships, and collaborative platforms and environments.

Remarks on increasing data centre capacities (Title III)

Increasing Europe's data centre capacity is important, but the focus should not be on quantity alone. Equal attention must be paid to quality. Europe should primarily seek to attract and develop high-value data centres that generate substantial economic and societal benefits while adhering to high environmental and energy-efficiency standards. In the Commission's proposal, high-value data centres are mentioned only as a priority area within national cloud and AI strategies. This is not sufficient. The objective of promoting high-value data centres should also serve as a guiding principle for data centre policy at the EU level.

Clear EU-level criteria should be established for high-value data centres, based at least on the following factors:

- the data centre's contribution to the resilience and security of communications networks and digital infrastructure
- the key services provided by the data centre for the benefit of society and businesses
- the data centre's direct and indirect contribution to employment
- the data centre's provision of essential tools for RDI activities and the growth of the data economy, available to both enterprises and research institutions
- the data centre's contribution to research and innovation (R&I) activities and to the creation of higher value-added activities and economic value within Europe

- the data centre's contribution to skills development, including through attracting international talent and top experts, and acting as a hub for advanced RDI projects that reinforce the capabilities of European industry, research and public sector organisations
- the data centre's role in advancing technological innovation and enabling technology-driven value creation within Europe
- the sustainability rating achieved by the data centre under the EU's forthcoming data centre sustainability rating scheme
- the data centre's contribution to the phase-out of fossil fuel-based district heating through waste heat recovery, while keeping costs for end users at a low level
- the data centre's responsible contribution to its host region and its cooperation with regional stakeholders, including its role in strengthening local data centre ecosystems, supporting local employment, and fostering regional growth and economic vitality

We are concerned about how the proposed data centre acceleration zones will ensure a balanced consideration of the needs of all stakeholders, particularly with regards to electricity grid capacity. Rather than establishing dedicated acceleration zones, it would be preferable to ensure favourable conditions for the development of data centre capacity across Europe as a whole. For example, permitting procedures should be reviewed and streamlined more broadly, instead of creating simplified processes applicable only within designated acceleration zones. It would also be more appropriate to target permitting incentives and other preferential measures at high-value data centres, as described above, rather than establishing acceleration zones where all data centres benefit from the same advantages regardless of their wider economic and societal contribution.

In addition to data centres, it is of paramount importance to focus on data itself and on European ownership of data. At present, Europe is not capturing the value created from the data generated by its own citizens and made freely available on the internet, nor is it sufficiently able to protect its citizens from the harmful consequences of data breaches and data misuse. This issue is highly relevant from the perspectives of Europe's competitiveness, technological sovereignty and security. Addressing it requires determined action to strengthen shared European data infrastructures, data capabilities and data ownership, thereby ensuring that the value generated from data can be retained and leveraged within Europe.

Europe needs joint investments in shared data platforms to ensure that data and its ownership remain in Europe, enabling European actors to create value from data while reducing dependencies on non-European data platforms. In developing European data platforms, existing structures should be leveraged to their fullest extent. This includes, for example, existing common European data spaces, including the European Open Science Cloud (EOSC)[1], as well as the

[1] https://eosc.eu/

emerging open European web index and search infrastructure, Open Web Search[2]. Securing long-term funding and establishing sustainable operations for these initiatives is essential from the perspective of Europe's competitiveness, technological sovereignty and strategic autonomy.

A European web index is a service that directs openly available web data, including consumer-generated data, towards European research, innovation and business activities, enabling value creation within Europe. Its estimated market potential is as high as €4.5 billion over a ten-year period[3]. The LUMI AI Factory is already leveraging this open web index through services such as Dataset-as-a-Service[4]. The EU should now systematically expand this concept to enable more effective use of European data flows for value creation within Europe.

Remarks on the provisions on autonomy (Title IV)

We strongly welcome the proposal to set assurance levels for cloud services used by the public sector. In our view, the emergence of independent cloud services that are essential for Europe's technological sovereignty requires supportive measures of this kind. It is therefore important to preserve the level of ambition of the proposal especially with regards to the cloud sovereignty framework.

However, certain aspects of the sovereignty framework still require careful scrutiny. For example, it is important to ensure that the recognition and self-assessment procedures required of cloud service providers do not become barriers to market entry for new and emerging European cloud providers. Furthermore, we are critical of the idea of assessing the trustworthiness of cloud service provider personnel on the basis of nationality. National security clearance procedures should be considered sufficient to establish an individual's trustworthiness, regardless of their citizenship.

Concluding remarks: developing an ecosystem for competitiveness and tech sovereignty

The potential of Europe's data economy is enormous. The value of the data economy in EU Member States is estimated to grow from €630 billion to €815 billion between 2025 and 2030[5]. To unlock this potential, Europe needs a robust ecosystem of digital capabilities and skills that enables the effective use and exploitation of data. Such an ecosystem is essential for transforming data into innovation, productivity gains and economic value, while strengthening Europe's competitiveness, technological sovereignty and resilience.

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[2] https://openwebsearch.eu/
[3] https://openwebsearch.eu/the-project/research-results/market-potential-assessment-of-an-european-open-web-index/
[4] https://lumi-ai-factory.eu/services/dataset-as-a-service/
[5] https://ec.europa.eu/newsroom/repository/document/2025-13/EDM_2024__2026__First_Report_on_Facts_and_Figures_9cU0iIjcuSZhjmwI9TchwqenidQ_114043.pdf

The economic and societal impact of ecosystem investments is substantial. According to an analysis by an independent research agency Taloustutkimus, every euro invested in CSC's high-performance computing services generates between €25 and €37 in direct economic benefits through, among other things, RDI activities, business development, and the development of new skills. Taloustutkimus has also assessed the economic impact of business use of the LUMI supercomputer, finding that each euro invested has delivered benefits worth €11 to €20 for companies through time and cost savings, the development of new capabilities, opportunities to experiment with emerging technologies such as quantum computing, and enhanced business development enabled by artificial intelligence.

While indirect impacts are more difficult to quantify, they are likely to be significant. Supercomputing can, for example, substantially improve the speed and accuracy of diagnostics, support the development of precision treatments for cancer and rare diseases, and enable the creation of European AI models and new AI-based services. These broader benefits contribute not only to economic growth but also to societal well-being, scientific advancement and Europe's long-term technological competitiveness and sovereignty.
Digital research infrastructures are also essential for anticipating the impacts of climate change and extreme weather events, as well as for managing systemic security and economic risks. They enable the integration of data from different scientific disciplines, creating new knowledge and solutions. For example, the digital twins developed under the Destination Earth initiative, which leverages the LUMI supercomputer and data infrastructure hosted at CSC's data centre, combine high-performance computing, artificial intelligence, data and modelling to enable more accurate assessments of impacts on energy networks, transport systems, data centres, and the availability of food and water. In doing so, they also strengthen Europe's strategic autonomy, resilience and competitiveness. They also demonstrate that the greatest value is created not by individual technologies alone, but by their integration into broader capability ecosystems that connect infrastructure, data, skills, research and practical deployment. Long-term investments in shared European data and computing infrastructures are therefore of critical importance.

Europe does not primarily suffer from a lack of research excellence, talent, technological ambition or digital infrastructure. A more significant challenge is ensuring that investments, capabilities and governance frameworks operate as mutually reinforcing parts of a coherent ecosystem. Without stronger alignment, synergies between programmes remain underutilised, capabilities develop at different speeds, and Europe risks failing to capture the full value of its investments.

Over the past decade, Europe has made substantial investments in high-performance computing, artificial intelligence, quantum technologies, data infrastructures, semiconductors and connectivity. These investments have successfully established many of the technological building blocks required for future competitiveness. However, these capabilities have often been developed through separate programmes, funding instruments and governance structures. As technologies increasingly converge, governance and implementation mechanisms must evolve accordingly to ensure that Europe develops and manages these capabilities as interconnected ecosystems rather than isolated technology domains

Europe's competitiveness challenge is therefore increasingly not about developing individual technologies, but about connecting them. AI depends on computing infrastructure, data and skills; quantum computing depends on HPC environments, specialised software and expertise; and data-driven innovation depends on trusted infrastructures and effective governance frameworks. Public investments should increasingly support these interdependencies and the resulting capability ecosystems.

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