Position Paper 28.06.2024
CSC – IT Center for Science Ltd.
European Commission White Paper: How to master Europe's digital infrastructure needs?

CSC's position focuses on the three key pillars outlined in the White Paper. Our recommendations are based on our expertise in operating Finland's national research and education network FUNET as well as related services and international collaboration through NORDUnet and GÉANT. CSC is additionally hosting Europe's fastest supercomputer 'LUMI', owned by EuroHPC, in our data center in Kajaani, together with a consortium of 11 European countries.

CSC welcomes the Commission's Connectivity package and recognises the importance of improving Europe´s digital network infrastructure to reach the goals of the Digital Decade and strengthen Europe´s global competitiveness and security. The White Paper rightfully underlines that the future competitiveness of all sectors of Europe's economy depends on advanced digital network infrastructures and services. However, the link between Europe's competitiveness and a functional research and innovation system could be better addressed by recognising that advanced digital network infrastructures, including resilient submarine cables for backbone connectivity, are of key importance for a thriving European research community. As research is becoming more and more data-intensive and global, secure, state-of-the art network infrastructures and services are required to interconnect researchers, data and computing resources in Europe and worldwide. A future Digital Networks Act must enable and promote research and innovation and align with relevant RDI and data policies.

Pillar I
CSC believes that connectivity, cloud, HPC, quantum computing, AI and data management must be developed in convergence to allow for data to be analysed and re-used in the most appropriate environment, taking into account the needs of different beneficiaries. In Pillar I of the White Paper, an ecosystem with a wide community of different actors is described to advance the development of integrated connectivity and collaborative computing infrastructures (scenario 1). However, data centers are missing from this ecosystem description. Centralised computing in dedicated data centers offers significant advantages, such as improved sustainability through more efficient cooling and heat reuse capabilities. Another key aspect of the ecosystem which is largely missing in the White Paper are measures to develop necessary competences and skills to successfully manage the transformation of the connectivity infrastructure.

CSC agrees that it is essential to better leverage synergies between existing funding programmes, such as Horizon Europe, the Connecting Europe Facility (CEF) Digital, and Digital Europe Programme (scenario 3), but recommends to avoid creating new IPCEIs (scenario 2) as this could easily lead to fragmentation. Instead, emphasis should be on leveraging existing IPCEIs as well as liaising with relevant computing and data infrastructures, such as EuroHPC JU, and the Common European Data Spaces, including EOSC.

Pillar II
While it is important to strengthen sustainability, industrial competitiveness and economic security, other measures should be prioritised over expanding the scope of the telecommunications directive ((EU) 2018/1972) (scenario 4). In general, any new regulation must be carefully considered and only adopted after existing regulation has been fully implemented and its impact evaluated. It is

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critical to ensure that all new legislation is in line with existing legislation, creating a coherent regulatory framework that is applied in a consistent and predictable way across the Union.

Coordination with existing legislation is particularly important when it comes to sustainability. Any sustainability requirements for networks must be brought in line with those set or planned for other parts of the digital ecosystem (scenario 7), such as the recently adopted sustainability rating scheme for data centres (C(2024) 1639 final). To ensure a horizontal approach to sustainability, the EU should consider developing a comprehensive climate and environmental EU strategy for the ICT sector, inspired by the strategy Finland adopted in 2021. This strategy would apply principles and objectives consistently across EU regulations and funding programmes.

Pillar III
The security of submarine cable infrastructures is crucial for the EU's resilience and digital sovereignty. CSC supports establishing a list of Cable Projects of European Interest ('CPEIs') to address strategic gaps and establish new connections and to improve coordination across the EU, both in terms of governance and funding (scenario 9,10 and 11). CSC further recommends developing a best practice legal structure for public-private partnerships for CPEIs.

A prime example of new strategically important connections is outlined in the Polar Connect Vision 2030 report, highlighting the significance and potential of Arctic connectivity. Currently, data communication between Europe to Asia passes almost exclusively via cable routes in the Suez Canal. Connecting Europe to East Asia via submarine cables through the Arctic Ocean will increase capacity and redundancy of the global digital infrastructure, avoid congestion on current routes, and enhance European digital sovereignty and resilience in the current geopolitical context. Adding Arctic routes to the existing interconnections with the GÉANT network will additionally provide numerous benefits to the research and education community across Europe, boosting scientific collaboration with like-minded nations in Asia. The White Paper must better acknowledge that the European research community increasingly depends on resilient research infrastructures, and that submarine cable infrastructures and Europe's research interests are intrinsically linked and global in nature.

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