



COMMENTS ON EUROPEAN COMMISISON PROPOSAL FOR THE 2030 DIGITAL DECADE POLICY PROGRAMME – KEY PERFORMANCE INDICATORS¹

The Association for Computing Machinery (ACM) is the world's largest and longest established professional society of individuals involved in all aspects of computing. It annually bestows the ACM A.M. Turing Award, often popularly referred to as the "Nobel Prize of computing." ACM's Europe Technology Policy Committee ("Europe TPC") is charged with and committed to providing objective technical information to policy makers and the general public in the service of sound public policymaking. ACM and Europe TPC are non-profit, non-political, and non-lobbying organizations. Europe TPC is pleased to submit the following comments in response to the European Commission request for feedback² on the key performance indicators (KPIs) for the Digital Decade policy programme 2030.³

Overview

Europe TPC generally considers the proposed set of KPIs to be comprehensive and suitable for measuring progress towards achieving the targets established by the 2030 Digital Decade policy programme. We note with some urgency, however, that none of the proposed KPIs address greenhouse gas emissions incident to the deployment of digital technology and strongly recommend that a KPI concerning the measurement of progress towards true reduction of such emissions be added.⁴ Europe TPC also respectfully recommends that this document include one or more statements of the overall goals of the programme, in addition to year over year targets.

Europe TPC also offers the following KPI-specific recommendations:

(3) – Gigabit connectivity

When measuring the percentage of households served by fixed Very High Capacity Networks, consideration should be given to the actual technology used to implement Fibre-to-the-Premises connectivity. Although technologies such as Gigabit Passive Optical Network deliver

¹ Europe TPC's Chair, Chris Hankin of Imperial College London, was the principal author of these comments. Also contributing were committee members Michel Beaudouin-Lafon, Advait Deshpande, and Gerhard Schimpf.

² https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13743-2030-Digital-Decade-policy-programme-key-performance-indicators_en

³ Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030
[<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022D2481&from=EN>]

⁴ This request is consistent with Europe TPC's [Comments on Draft Decision on Establishing 2030 Policy Programme "Path to the Digital Decade"](#) of December 10, 2021: "*Climate Change*: While understandably appealing, reliance on new technologies to accomplish the Commission's climate change mitigation goals actually could be counterproductive. For example, while blockchain technology's functionality may be well suited to the secure operation of global carbon offset markets, its present enormous power consumption needs may negate any emission reductions it fosters. Also see the recent ACM TechBrief on [Computing and Climate Change](#) for more background and detail [<https://dl.acm.org/doi/pdf/10.1145/3483410>]."

fibre to the end-user's premises, these are typically a form of shared network resource. Effectively, while the network is capable of delivering gigabit bandwidth capacity, the bandwidth is spread across all connected premises in the neighbourhood. As a result, subject to household density in the neighbourhood and patterns of end-user usage, the network may not always deliver gigabit bandwidth capacity either downstream or upstream to individual connected premises. Accordingly, to provide a more accurate measure of gigabit connectivity the KPIs should consider the number of point-to-point gigabit connections and their actual bandwidth capacity.

(7) – Quantum Computing

The EU quantum roadmap⁵ encompasses much more than quantum computation, including (in contrast to true quantum computing): communication, simulation, measurement, encryption, control, and software. To date, early-stage commercial or trial access to quantum computing primarily has taken the form of cloud computing services. Such services are likely to remain the most prevalent form of commercial access to quantum computing resources in the near-term due to the cost of developing and deploying quantum technology.

Since commercial cloud computing is dominated by non-European providers, the KPIs should consider and measure the status of European leadership in quantum cloud computing. Additionally, in the near-term, the use of hybrid computing systems combining classical computing with quantum computing is likely to predominate in commercial quantum computing usage. The KPIs thus also need to consider European technical leadership and impact leadership pertaining to such hybrid systems.

Lastly, Europe TPC recommends that this KPI be modified to focus more generally on quantum technologies and that a more precise definition of uniqueness be developed that makes clear which technologies should be included in the measurement of the number of unique quantum computing hardware systems and services.

(9) – Big Data

Definitions of big data tend to rely on qualitative notions, such as the "4V model" focussed on velocity, veracity, volume, and variety. Since these attributes of data are open to different interpretations, the Europe TPC recommends that the Commission provide a single quantitative definition of big data to ensure uniformity of measurement across the EU Member States.

(10) – Artificial Intelligence

Without an accurate and unequivocal definition of artificial intelligence, it is likely that all enterprises will be found to be using some form of artificial intelligence technology. Alternatively, Europe TPC recommends measuring usage of high-risk AI applications as defined in the proposed European Union's Artificial Intelligence Act.⁶

⁵ <https://qt.eu/about-quantum-flagship/newsroom/quantum-technology-roadmap/>

⁶ [Proposal for a Regulation of the European Parliament and of the Council Laying Down Harmonised Rules on Artificial Intelligence \(Artificial Intelligence Act\) and Amending Certain Union Legislative Acts](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52021PC0206), COM/2021/206 final (April 21, 2021). [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52021PC0206]

Conclusion

ACM's Europe Technology Policy Committee stands ready to leverage the expertise of its thousands of European members to assist the European Commission in its further consideration of the Digital Decade policy programme 2030 in this proceeding, or otherwise with respect to technical matters implicating any aspect of general computing and its societal impacts. To request such technical, apolitical input please contact ACM's Director of Global Policy & Public Affairs, Adam Eisgrau, at acmpo@acm.org or +1 202.580.6555.