Feedback to the European Commission on 2030 Digital Decade Key Performance Indicators

The Center for Data Innovation (Transparency Register #: 367682319221-26) is pleased to submit this feedback on the European Commission's key performance indicators (KPIs) to measure the progress towards the Digital Decade Policy Programme 2030 digital targets, as established by Article 4(1) of Decision (EU) 2022/2481 of the European Parliament and of the Council.[1]

OVERVIEW OF THE CENTER'S POSITION

Europe's Digital Decade is a unique program that, if successfully implemented, will help the European Union supercharge digital innovation and technology usage in its member states by 2030.[2] The Center commends the European Commission for working towards measuring the EU's success or failure on its Digital Decade goals. Analyzing where the EU is succeeding and failing in its digital transformation will be critical in redirecting resources and course-correcting toward its 2030 targets. Please find a table of targeted feedback below and proposed changes on how to improve some of the proposed KPIs.

[1] European Commission, "Commission Implementing Decision (EU) .../... of XXX setting out key performance indicators to measure the progress towards the digital targets established by Article 4(1) of Decision (EU) 2022/2481 of the European Parliament and of the Council," February 13, 2023, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13743-2030-Digital-Decade-policy-programme-key-performance-indicators_en; European Commission, "Annex to "Commission Implementing Decision (EU) .../... of XXX setting out key performance indicators to measure the progress towards the digital targets established by Article 4(1) of Decision (EU) 2022/2481 of the European Parliament and of the Council," February 13, 2023, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13743-2030-Digital-Decade-policy-programme-key-performance-indicators_en.

[2] Decision (EU) 2022/2481 of the European Parliament and of the Council, "Establishing the Digital Decade Policy Programme 2030," Official Journal of the European Union, December 14, 2022, https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32022D2481&from=EN.

FEEDBACK FOR KEY PERFORMANCE INDICATORS

#	Original Digital Decade Target	Commission's Proposed KPI	Proposed Data Source	Center's Feedback
(3)	*All end users at a fixed location are covered by a gigabit network up to the network termination point, and all populated areas are covered by next-generation wireless high-speed networks with performance at least equivalent to that of 5G, in accordance with the principle of technological neutrality;*	*Gigabit connectivity, measured as the percentage of households covered by fixed Very High Capacity Networks (VHCN). The technologies considered are Fibre to the Premises and Cable DOCSIS4 3.1. The evolution of the Fibre to the Premises coverage will also be monitored separately, and taken into consideration when interpreting VHCN coverage data*	*Commercial provider delivering a study for the Commission*	Instead of choosing an arbitrary speed (i.e., gigabit) that is vastly greater than what most households need, a better indicator is whether households have access to reliable networks with sufficiently high bandwidth and low latency to use the applications they want in 2030. Moreover, the target should be in accordance with the principle of technology neutrality and therefore not preference or exclude specific technologies for consideration.
(4)	*All end users at a fixed location are covered by a gigabit network up to the network termination point, and all populated areas are covered by next-generation wireless high-speed networks with performance at least equivalent to that of 5G, in accordance with the principle of technological neutrality;*	*5G coverage, measured as the percentage of populated areas covered by at least one 5G network using the 3.4-3.8 GHz spectrum band. For the first 2 years, additional reporting will be done for 5G coverage regardless of the spectrum band used.*	*Commercial provider delivering a study for the Commission*	A more relevant KPI is the percentage of the population that regularly have access to 5G or 5G-equivalent speeds. This metric avoids capturing populated areas that could be covered but where coverage is sporadic. Policymakers should also consider a KPI for 6G deployment.

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(7)	*The Union has, by 2025, its first computer with quantum acceleration, paving the way for the Union to be at the cutting edge of quantum capabilities by 2030.*	*Quantum computing measured as the number of unique Union quantum computing hardware systems/services, as well as reporting on European technical leadership and European impact leadership. European quantum computing hardware system/services are hardware stack systems/services demonstrating quantum advantage (i.e., outperforming a non-quantum hardware system/service in the solution of the same problem) using an ad-hoc benchmark created for proof.* *European technical leadership is measured as the use of a widely adopted quantum volume benchmark for the largest quantum computing capacity. European impact leadership is measured as number of quantum algorithms and use cases created with clear impact orientation in basic science, applied science, industries, and the public sector.*	*Publicly available/ subscription data provision*	The proposed KPI for the EU's "first computer with quantum acceleration" would count how many quantum systems the EU has at a given time. But it is not clear what the Commission means by quantum acceleration or why counting how many quantum systems it has would help gauge how close the EU is to having one with the amorphous "quantum acceleration" capability. A much more useful KPI would create a measure for when a quantum computing system is powerful enough to be considered one with "quantum acceleration." A quantum volume benchmark, which is a test that produces a single-number measure of a quantum computer's general capability, could be one useful qualitative KPI toward this end. While the EU does propose the use of a "widely adopted quantum volume benchmark" to measure technical leadership, it does not specify whether it will develop this benchmark by itself or by using international standards. Because quantum computers come in many different architectures, represent a constantly emerging technology, and have a global supply chain, the EU should pursue common specifications for any measurements of quantum capabilities.
(8)	*At least 75% of Union enterprises have taken up one or more of the*	*Cloud computing, measured as the percentage of enterprises using at least one of the following cloud computing services: finance or accounting software applications,*	*Eurostat - European Union survey on ICT usage*	The proposed KPI for cloud computing adoption fails to account for all cloud computing services because it targets a narrow list of applications. Using a broader understanding of cloud computing

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	following, in line with their business operations: ***(i) cloud computing services;*** *(ii) big data;* *(iii) artificial intelligence;*	*enterprise resource planning (ERP) software applications, customer relationship management (CRM) software applications, security software applications, hosting the enterprise's database(s), and computing platform providing a hosted environment for application development, testing or deployment.*	*and e-commerce in enterprises.*	that doesn't focus on applications specifically—like the standard developed by the International Organization for Standardization (ISO)—will not limit the measurement of adoption to only a few, specific cloud computing services.[3] It will also make it easier for policymakers to compare the EU's cloud computing adoption to international peers like the United States or China. If the goal of the KPI is to focus on the EU's digital transformation and adoption of cloud computing, the KPI should not just measure how many enterprises use cloud computing services, but the level of sophistication of these cloud computing services. Measuring the use of more powerful cloud computing applications over time will better measure the EU's digital transformation and use of novel technology. A more effective KPI would also measure industry contribution to the economy from adopting this technology, the most accurate measure for which is value added.[4] To take a hypothetical example: imagine the largest 500 companies in the EU don't adopt cloud computing but the smallest 3 million do. This would lead to very high adoption rates by firm, but the share of EU value added might be low.

[3] International Organization for Standardization, "ISO/IEC 17788:2014(en) Information technology — Cloud computing — Overview and vocabulary," Online Browsing Platform, Accessed March 6, 2023, https://www.iso.org/obp/ui/#iso:std:iso-iec:17788:ed-1:v1:en.
[4] OECD website, "Value added by activity", https://data.oecd.org/natincome/value-added-by-activity.htm#, Accessed March 9, 2023.

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(10)	*At least 75% of Union enterprises have taken up one or more of the following, in line with their business operations:* *(i) cloud computing services;* *(ii) big data;* ***(iii) artificial intelligence;***	*Artificial intelligence, measured as the percentage of enterprises using at least one artificial intelligence technology*	*Commercial provider delivering a study for the Commission*	The proposed KPI does not use or rely on a specified definition of artificial intelligence (AI). The KPI should use a clear definition of AI, specifying techniques and methods that do not apply. For example, basic software and statistical methods (such as those used in Excel) are not considered AI and should, therefore, not count towards the uptake of AI. On the other hand, some robotics technologies rely on AI techniques and should count toward the uptake of AI. Indeed, if Europe wants to better measure its competitiveness, having a KPI to measure AI-enabled robots is valuable. The European Artificial Intelligence Board should also ensure the definition of artificial intelligence harmonizes with other EU legislation such as the Artificial Intelligence Act.[5] As noted above, this KPI could be even more valuable if it measured the growth in value-added to the economy from adopting this technology.
(11)	*More than 90% of Union SMEs reach at least a basic level of digital intensity;*	*SMEs with at least a basic level of digital intensity, measured as the percentage of SMEs using at least 4 of 12 selected digital technologies*	*Eurostat - European Union survey on ICT usage and*	The Commission should adjust this KPI to pull clearly from the 2021 Digital Intensity Index as its current citation is unclear.[6] While it pulls from the same survey, using the index that already exists

[5] 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 (2021), https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=celex%3A52021PC0206.
[6] European Commission, "Digital Intensity Index," Accessed March 8, 2023 https://circabc.europa.eu/sd/a/85e9f133-c930-4453-84d0-2161469b1695/DIGITAL%20INTENSITY%20INDEX.pdf.

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			e-commerce in enterprises.	will more clearly target the Digital Decade goals.[7] If the focus is on SMEs, it should exempt very small micro firm i.e., firms with less than 10 employees and focus instead on SMEs above this size.[8] Many of the smallest SME firms are not going to be able to adopt sophisticated technologies for a variety of technical and capacity reasons.
(12)	*The Union facilitates the growth of its innovative scale-ups and improves their access to finance, leading to at least doubling the number of unicorns;*	*Unicorns, measured as the sum of unicorns' unicorns referred to in Article 2, point (11)(a), of Decision (EU) 2022/2481 and those referred to in Article 2, point (11)(b), of that Decision.*	*Publicly available/ subscription data provision (tbc)*	The KPI rightfully uses an internationally known standard for unicorns—a valuation of $1 billion either in IPO or the last private venture funding round.[9] But because the EU has said one of the key goals of the Digital Decade is to pave the way for a competitive Europe, it would be useful for the KPI to measure the extent of growth of innovative scale-ups in key industries for competitiveness, such as manufacturing. Therefore, the EU should consider adjusting the KPI to be a function of the amount of unicorns and in which industries they are in.
(13)	*There is 100% online accessible provision of key public services and, where*	*Online provision of key public services for citizens, measured as the share of administrative steps that can be done fully*	*Commercial provider delivering a*	It is unclear what sorts of administrative steps would be included in things like "public services for moving" or "public services for family," which will

[7] "Commission Implementing Regulation (EU) 2021/1190 of 15 July 2021 laying down the technical specifications of data requirements for the topic 'ICT usage and e-commerce' for the reference year 2022, pursuant to Regulation (EU) 2019/2152 of the European Parliament and of the Council (Text with EEA relevance)," Official Journal of the European Union, July 15, 2021, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2021.258.01.0028.01.ENG.

[8] European Commission, "SME definition," Accessed March 9, 2023. https://single-market-economy.ec.europa.eu/smes/sme-definition_en.

[9] James Chen, " Unicorn: What It Means in Investing, With Examples," Investopedia May 31, 2022, https://www.investopedia.com/terms/u/unicorn.asp#:~:text=Investopedia%20%2F%20Paige%20McLaughlin-,What%20Is%20a%20Unicorn%3F,by%20venture%20capitalist%20Aileen%20Lee.

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	relevant, it is possible for citizens and businesses in the Union to interact online with public administrations;	*online for major life events. The following life events are considered: moving; transport; starting a small claims procedure; family; career; studying; health.*	*study for the Commission*	make it hard for the commercial provider to measure their online provision. Policymakers should clarify what these administrative steps are and what they entail to ensure the commercial provider can measure them properly. Additionally, policymakers should ensure the commercial provider measures the online provision of key public services at the EU-level, member state-level, and local level. Measuring this KPI regionally, nationally, and locally will help pinpoint specific places for improvement.
(14)	*There is 100% online accessible provision of key public services and, where relevant, it is possible for citizens and businesses in the Union to interact online with public administrations;*	*Online provision of key public services for businesses, measured as the share of administrative steps needed to start a business and conduct regular business operations, which can be done fully online.*	*Commercial provider delivering a study for the Commission*	Like how the commercial provider should measure whether individuals can access public services online at the regional, national, and local level, the commercial provider should measure business access to public services online at the EU-level, member state-level, and the local level. Measuring this KPI regionally, nationally, and locally will help pinpoint specific places for improvement.
(15)	*100% of Union citizens have access to their electronic health records;*	*Access to e-health records, measured as:* *(i) the existence of a nationwide mechanism, for citizen online access to health data, such as a patient portal, or a patient mobile app with additional measures in place that enable certain categories of people (e.g. guardians for*	*Commercial provider delivering a study for the Commission*	The proposed KPI does not include a measure of how interoperable different countries' national health record systems are. Given people can move freely in the Schengen Zone, Union citizens that move between different member states, say France and Italy, should be able to maintain access to their electronic health records.[10]

[10] European Commission, "Exchange of electronic health records across the EU," Accessed March 8, 2023, https://digital-strategy.ec.europa.eu/en/policies/electronic-health-records.

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		children, people with disabilities, elderly) to also access their data, and *(ii) the percentage of individuals that have the ability to obtain or make use of their own minimum set of health-related data currently stored in public and private electronic health-record (EHR) systems.*		Policymakers should measure whether residents can easily move their specialist and primary health records between member states by adding a section (iii) to the KPI that discusses the percentage of electronic health record systems that are interoperable.