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COMMISSION STAFF WORKING DOCUMENT

DESI 2024 methodological note

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1 The DESI 2024

In line with Article 2(1) of the Digital Decade Policy Programme 2030 (the Decision), adopted by the Council and the Parliament in December 2022[1], since its 2023 edition, the Digital Economy and Society Index (DESI) is based on a set of indicators providing a multi-dimensional, detailed picture of the collective, annual progress made by the EU towards the 2030 goals. DESI consists of a dashboard of indicators fully aligned with the digital targets established in the Decision. It includes all the key performance indicators (KPIs) set out in the Commission Implementing Decision[2] for which national level values are available or estimated.

The DESI 2024 indicators dashboard includes a total of 36 indicators, 15 of which are Digital Decade KPIs (Table 1)[3]. To allow for a clear connection between indicators and associated targets, indicators are grouped into *dimensions*, related to the Digital Decade targets, and *sub-dimensions*, populated by KPIs and auxiliary related indicators.

The DESI dashboard's indicators and metadata can be accessed and analysed via the DESI visualisation tool for all the available years.

Most of the indicators are collected by the relevant authorities of the Member States and by the Commission (Directorate-General for Communications Networks, Content and Technology and Eurostat) and, in few cases, by ad hoc studies launched by the Commission for which all the details and links are provided.

Table 1 DESI 2024 dashboard

Dimension	Sub-dimension	Indicator
1 Digital skills	Internet user skills	Internet use
		At least basic digital skills (DD KPI)
		Above basic digital skills
		At least basic digital content creation skills
	Advanced skills and development	ICT specialists (DD KPI)
		ICT graduates
2 Digital infrastructures	Fixed broadband	Overall internet take-up
		Share of fixed broadband subscription >= 100 Mbps
		Share of fixed broadband subscription >= 1 Gbps
		Fixed Very High Capacity Network (VHCN) coverage (DD KPI)
		Fibre to the Premises (FTTP) coverage (DD KPI)
	Mobile broadband	Mobile broadband take-up
		Overall 5G coverage (DD KPI)
		5G coverage in the 3.4-3.8 GHz band
		5G spectrum
		5G SIM cards (share of population)
		Edge nodes (DD KPI)
3 Digital transformation of businesses	Digital intensity	SMEs with at least a basic level of digital intensity (DD KPI)
	Digital technologies for businesses	Electronic information sharing
		Social media
		Data Analytics – former Big Data (DD KPI)

[1] Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 (Text with EEA relevance), OJ L 323, 19.12.2022, p. 4–26.

[2] Commission Implementing Decision (EU) 2023/1353 of 30 June 2023 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.

[3] Semiconductors and quantum KPI are assessed at the EU level and are not included in the dashboard.

		Cloud (DD KPI)
		Artificial Intelligence (AI) (DD KPI)
		AI or Cloud or Data Analytics (DD combined KPI)
		e-Invoices
		Unicorns (DD KPI)
	e-Commerce	SMEs selling online
		e-Commerce turnover
4 Digitalisation of public services	e-Government	e-Government users[4]
		Digital public services for citizens (DD KPI)
		Digital public services for businesses (DD KPI)
		Pre-filled forms
		Transparency of service delivery, design and personal data
		User support
		Mobile friendliness
	e-Health	Access to e-health records (DD KPI)

1.1.1 Digital skills

Table 2 Digital skills indicators

Indicator	Description	Unit	Source	Reference year (latest available year with comparable values across the EU)
Internet use	Individuals who use the internet at least once a week	% of individuals	Eurostat – European Union survey on the use of ICT in Households and by individuals (ISOC_CI_IFP_FU [I_IUSE])	2023
At least basic digital skills	Individuals with 'basic' or 'above basic' digital skills in each of the following five dimensions: information, and data literacy, communication and collaboration, problem solving, digital content creation and safety	% of individuals	Eurostat – European Union survey on the use of ICT in Households and by Individuals (ISOC_SK_DSKL_I21 [I_DSK2_BAB])	2023
Above basic digital skills	Individuals (aged 16-74) with 'above basic' digital skills in each of the following five dimensions: information, and data literacy, communication and collaboration, problem solving, digital content creation and safety	% of individuals	Eurostat – European Union survey on the use of ICT in Households and by Individuals (ISOC_SK_DSKL_I21 [I_DSK2_AB])	2023
At least basic digital content creation skills	Individuals with at a basic level of skills in using software for digital content creation	% of individuals	Eurostat – European Union survey on the use of ICT in Households and by Individuals (ISOC_SK_DSKL_I21 [I_DSK2_DCC_BAB])	2023
ICT specialists	Employed ICT specialists. Broad definition based on the ISCO-08 classification and including jobs like ICT service managers, ICT professionals, ICT technicians, ICT installers and servicers.	% of total employment	Eurostat – Labour force survey (ISOC_SKS_ITSPT)	2023
ICT graduates	Persons with a degree in ICT	% of graduates	Eurostat (table EDUC_UOE_GRAD03, using selection ISCED11=ED5-8 and ISCEDF_13 [F06] "Information and Communication Technologies")	2022

The digital skills group of indicators assesses both internet user skills of citizens and the number of specialists with advanced digital skills. At least basic digital skills and ICT specialists measure progress towards the targets of the Digital Decade Policy Programme.

1.1.2 Digital infrastructures

Table 3 Digital infrastructures indicators[5]

Indicator	Description	Unit	Source	Reference year (latest available year with comparable values across the EU)
Overall Internet take-up	Households with access to the Internet at home	% of households	Eurostat, Households - level of internet access (table: ISOC_CI_IN_H)	2023
Share of fixed broadband subscription >= 100 Mbps	% of households subscribing to fixed broadband of at least 100 Mbps, calculated as overall broadband take-up multiplied with the percentage of fixed broadband lines of at least 100 Mbps (source: COCOM)	% of households	European Commission through the Communications Committee (COCOM) and Eurostat – European Union survey on the use of ICT in households and by individuals	2023
Share of fixed broadband subscription >= 1 Gbps	% of households subscribing to fixed broadband of at least 1 Gbps, calculated as overall broadband take-up multiplied with the percentage of fixed broadband lines of at least 1 Gbps (source: COCOM)	% of households	European Commission through the Communications Committee (COCOM) and Eurostat – European Union survey on the use of ICT in households and by individuals	2023
Fixed Very High Capacity Network (VHCN) coverage	% of households covered by any fixed VHCN. The technologies considered are FTTH and FTTB for 2017-2018 and FTTH, FTTB and Cable DOCSIS 3.1 for 2019 onwards (source: EUROSTAT ISOC_CBT)	% of households	Broadband coverage in Europe studies for the European Commission by Omdia and Point Topic 'Broadband coverage in Europe 2023': https://digital-strategy.ec.europa.eu/en/news-redirect/833345	2023
Fibre to the Premises (FTTP) coverage	% of households covered by FTTH and FTTB (source: EUROSTAT ISOC_CBT)	% of households	Broadband coverage in Europe studies for the European Commission by Omdia and Point Topic 'Broadband coverage in Europe 2023': https://digital-strategy.ec.europa.eu/en/news-redirect/833345	2023
Mobile Broadband take-up	Individuals who used the internet on a mobile device	% of individuals	Eurostat, Individuals - devices used to access the internet (isoc_ci_dev_i)	2023
Overall 5G coverage	% of populated areas with coverage by at least one 5G mobile network (source: EUROSTAT ISOC_CBT)	% of populated areas	Broadband coverage in Europe studies for the European Commission by Omdia and Point Topic 'Broadband coverage in Europe 2023': https://digital-strategy.ec.europa.eu/en/news-redirect/833345	2023

[5] Please note that indicator's values from both COCOM and Omdia/Point Topic can be slightly revised backwards at the request of the MS's National Regulatory Authorities. For this reason, time series included in previous versions of the DESI may not fully match with the ones reported in DESI 2024.

5G coverage in the 3.4-3.8 GHz band	% of populated areas with coverage by 5G using the 3.4-3.8 GHz spectrum band	% of households	Broadband coverage in Europe studies for the European Commission by IHS Markit, Omdia and Point Topic. Data collected by IHS Markit, Omdia and Point Topic and verified by the national regulatory authorities (by data experts appointed by the members of the Communications Committee in every Member State). 'Broadband coverage in Europe 2023': https://digital-strategy.ec.europa.eu/en/news-redirect/833345	2023
5G spectrum	The amount of spectrum assigned and ready for 5G use within the so-called 5G pioneer bands. These bands are 700 MHz (703-733 MHz and 758-788 MHz), 3.6 GHz (3400-3800 MHz) and 26 GHz (1000 MHz within 24250-27500 MHz). All three spectrum bands have an equal weight[6]	Assigned spectrum as a % of total harmonised 5G spectrum	European Commission services, through the Communications Committee (COCOM)	2023
5G SIM cards share of population	5G mobile subscriptions defined as SIM cards that generated any internet traffic on a domestic 5G network in the last 90 days.	% of total population	European Commission services, through the Communications Committee (COCOM)	2023
Edge node (estimates)	Number of compute nodes providing latencies below 20 milliseconds.	Number of deployed edge nodes	EDGE Observatory - Edge nodes (all edge nodes with no further specification) estimated to be deployed across Europe in 2023 [https://ec.europa.eu/newsroom/dae/redirection/document/104539] based on the Edge observatory methodology [https://ec.europa.eu/newsroom/dae/redirection/document/100201].	2023

Under this group of indicators, both fixed and mobile broadband are analysed with indicators measuring the supply and the demand side. Fixed VHCN and 5G coverage measure progress towards the targets of the Digital Decade Policy Programme.

[6] Data on 5G spectrum are not published by Eurostat.

1.1.3 Digital transformation of businesses

Table 4 Digital transformation of businesses indicators

Indicator	Description	Unit	Source	Reference year (latest available year with comparable values across the EU)
SMEs with at least a basic level of digital intensity	The digital intensity score is based on counting how many out of 12 selected technologies are used by enterprises. A basic level requires usage of at least 4 technologies.	% of SMEs	Eurostat - European Union survey on ICT usage and e-commerce in Enterprises (ISOC_E_DII [E_DI4_LO + E_DI4_HI + E_DI4_VHI])	2023
Electronic information sharing	Enterprises who have in use an ERP (enterprise resource planning) software package to share information between different functional areas (e.g., accounting, planning, production, marketing)	% of enterprises	Eurostat - European Union survey on ICT usage and e-commerce in Enterprises (ISOC_EB_IIPN2 [E_ERP1])	2023
Social media	Enterprises using two or more of the following social media: social networks, enterprise's blog or microblog, multimedia content sharing websites, wiki-based knowledge sharing tools. Using social media means that the enterprise has a user profile, an account or a user license depending on the requirements and the type of the social media.	% of enterprises	Eurostat – European Union survey on ICT usage and e-commerce in Enterprises (ISOC_CISMT [E_SM1_GE2])	2023
Data Analytics[7]	Enterprises analysing big data from any data source	% of enterprises	Eurostat - European Union survey on ICT usage and e-commerce in Enterprises (ISOC_EB_BD [E_BDA])	2023
Cloud	Enterprises buying sophisticated or intermediate cloud computing services	% of enterprises	Eurostat - European Union survey on ICT usage and e-commerce in enterprises (ISOC_CICCE_USE [E_CC1_SI])	2023
AI	Enterprises using any AI technology	% of enterprises	Eurostat - European Union survey on ICT usage and e-commerce in enterprises (ISOC_EB_AI [E_AI_TANY])	2023
AI or Cloud or Data Analytics	Enterprises using AI technologies or buying sophisticated or intermediate cloud computing services or performing data analytics	% of enterprises	Eurostat - European Union survey on ICT usage and e-commerce in enterprises (ISOC_EB_AI)	2023

[7] In 2023, Eurostat in cooperation with all the EU National Statistical Institutes replaced the Big Data indicator with the Data Analytics one. Data analytics *refers to the use of technologies, techniques or software tools for analysing data to extract patterns, trends and insights to make conclusions, predictions and better decision-making with the aim of* improving performance (e.g., increase production, reduce costs). Data may be extracted from your own enterprise' data source or from external sources (e.g., suppliers, customers, government) (source Eurostat). Data Analytics includes a broader set of technologies than the former Big Data.

e-Invoices	Enterprises sending e-invoices, suitable for automated processing	% of enterprises	Eurostat - European Union survey on ICT usage and e-commerce in Enterprises (ISOC_EB_ICSN2 [E_INV4S_AP])	2023
SMEs selling online[8]	SMEs selling online (at least 1% of turnover)[9]	% of SMEs	Eurostat – European Union survey on ICT usage and e-commerce in Enterprises (ISOC_EC_ESELS [E_ESELL])	2023
e-Commerce turnover	SMEs' total turnover from e-commerce	% of SME turnover	Eurostat – European Union survey on ICT usage and e-commerce in Enterprises (ISOC_EC_EVALS[E_ETURN])	2023
Unicorns[10]	Calculated as the sum of 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	Number of unicorns	Dealroom.co (dataset downloaded on 29/01/2024) https://app.dealroom.co/dashboard	2023

The Digital transformation of businesses group of indicators is made up of 3 sub-groups: digital intensity, take-up of selected technologies by enterprises and e-commerce. SMEs with at least a basic level of digital intensity, and take-up of Cloud or Data Analytics or AI are targets of the Digital Decade Policy Programme.

[8] The indicator SME Selling online to non-EU countries has not been updated since 2021. It is therefore not included in the DESI 2024 visualisation tool.

[9] Data for e-commerce refer to the calendar year prior to the survey, e.g., 2023 data refer to 2022 e-commerce.

[10] Unicorns' classification and extraction methodology: The Commission extracts from the Dealroom platform companies that are classified as unicorns and have their headquarters in the EU27. This implies that all and only unicorns with headquarters in one EU member state at the time of the extraction are counted. Every company that is classified by Dealroom as "verified unicorn and USD 1 billion exits" has a last reported private valuation or exit of USD 1 billion or more. The term "exit" refers to the process by which investors, such as venture capitalists or founders, sell their stake in a company, typically to realise a return on their investment. In some cases, a private unicorn may have fallen below USD 1 billion in paper value since their last disclosed funding round and valuation. In this case, they retain their unicorn classification in Dealroom until an updated valuation is confirmed. Where a company had an exit above USD 1 billion and subsequently fell in value, it is still counted due to achieving a unicorn exit. Where company valuations are reported in currencies other than USD, the exchange rate from reported currency at the time is used. In these scenarios, Dealroom's analysists may decide to allow for a limited amount of benefit-of-the-doubt due to exchange rate fluctuation.

1.1.4 Digitalisation of public services

Table 5 Digitalisation of public services indicators

Indicator	Description	Unit	Source[11]	Reference year (latest available year with comparable values across the EU)
e-Government users[12]	Individuals who used the Internet, in the last 12 months, for interaction with public authorities on websites or on mobile applications	% internet users	Eurostat – European Union survey on the use of ICT in households and by individuals (ISOC_CIEGI_AC [I_IGOVANYS])	2023
Digital public services for citizens	The share of administrative steps that can be done online for major life events (birth of a child, new residence, etc.) for citizens	Score (0 to 100)	e-Government Benchmark 2024 https://digital-strategy.ec.europa.eu/en/news-redirect/833346	2023
Digital public services for businesses	The indicator broadly reflects the share of public services needed for starting a business and conducting regular business operations that are available online for domestic as well as foreign users. Services provided through a portal receive a higher score, services which provide only information (but have to be completed offline) receive a more limited score.	Score (0 to 100)	e-Government Benchmark 2024 https://digital-strategy.ec.europa.eu/en/news-redirect/833346	2023
Pre-filled forms	Amount of data that is pre-filled in public service online forms	Score (0 to 100)	e-Government Benchmark 2024 https://digital-strategy.ec.europa.eu/en/news-redirect/833346	2023
Transparency of service delivery, design and personal data	The extent to which service processes are transparent, services are designed with user involvement and users can manage their personal data	Score (0 to 100)	e-Government Benchmark 2024 https://digital-strategy.ec.europa.eu/en/news-redirect/833346	2023
User support	The extent to which online support, help features, and feedback mechanisms are available incl. cross-border	Score (0 to 100)	e-Government Benchmark 2024 https://digital-strategy.ec.europa.eu/en/news-redirect/833346	2023
Mobile friendliness	The extent to which services are provided through a mobile friendly interface, an interface that is responsive to the mobile device	Score (0 to 100)	e-Government Benchmark 2024 https://digital-strategy.ec.europa.eu/en/news-redirect/833346	2023

[11] Eurostat dataset code in brackets with indicator filter in squared brackets.

[12] The eGoverment users indicator included in DESI 2024 is defined as “Internet use: website or app of public authorities (last 12 months)”, as in the 2023 DESI dashboard.

Citizens' online access to electronic health records (short name = Access to e-Health records)	Measured as: (i) the nationwide availability of online access services for citizens to their electronic health records data (via a patient portal, or a patient mobile app) with additional measures in place that enable certain categories of people (e.g. guardians for 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.	Score (0 to 100)	'Digital Decade eHealth Indicator Study': https://digital-strategy.ec.europa.eu/en/news-redirect/833348	2023

The digitalisation of public services group of indicators describes the demand and supply of e-government as well as e-health. The Digital public services for citizens and businesses and the access to e-health records are indicators measuring progress towards the targets of the Digital Decade Policy Programme.

1.1.5 The dashboard for national trajectories

In agreement with Article 7 of the Digital Decade Policy Programme 2030, each Member State had submitted to the Commission its national roadmap. Member States should describe in their national roadmaps how they plan to contribute to achieving the digital targets set out in Article 4 of the Digital Decade Policy Programme 2030.

As laid down in Article 7(2)(b) of the Decision, Member States must also set in the roadmaps their national target values, defined as values that the Member States aim to achieve at national level in 2030, and the national projected trajectories that help meet each of the digital targets. All national trajectories should have included estimated yearly data points and been built on the basis of the EU level KPIs set out in the Commission Implementing Decision, using the same definitions and data sources thereby established.

To facilitate the analysis of national trajectories, the Commission developed a dashboard that visualises national trajectories and historical values for all the KPIs for which data is available and compares them with the EU-level ideal trajectory, published in the Communication from the Commission establishing Union-level projected trajectories for the digital targets (C(2023) 7500 final)[13].

For each Member State and each KPI (for which values and 2030 targets are available at national level) the dashboard consists of three main elements, indicated by the letters A, B, and C in Figure 1.

The bar-chart in box A shows:

1. [Dark green bars] The national forecast values until 2030 as reported in the national roadmap[14]. The starting year of the national forecasts shall coincide with the KPI reference year as reported in the DESI 2023 dashboard. It is important to note that in DESI 2023 the reference year is not the same for all the KPIs. In most of the cases it is 2022, but in a few instances it is 2021 or 2020[15].
2. [Light green bars] The available historical data points from the corresponding data sources. In this chart, the last historical data point coincides with the DESI 2023 reference year for that KPI as this was the most recent data point available to the member states in 2023 when they developed their national roadmap.
3. [Blue line] The EU-level ideal trajectory as established by the 2023 Communication from the Commission establishing Union-level projected trajectories for the digital targets.
4. [Purple horizontal line] The EU 2030 target.

The gauge in box B shows the level of commitment of the country by 2030:

5. [Central value and purple sector of the gauge] The value that the country is planning/expecting to reach in 2030 as reported in the national roadmap, in this illustrative case 70.2%
6. [Black segment in the gauge] The EU 2030 target, 80% in this case.
7. [Extremes of the gauge] The theoretical minimum and maximum values of the KPI.

When the Member State did not indicate its 2030 target in the national roadmap, the central value is empty and the gauge is not coloured in purple.

[13] https://digital-strategy.ec.europa.eu/en/library/communication-establishing-union-level-projected-trajectories-digital-targets

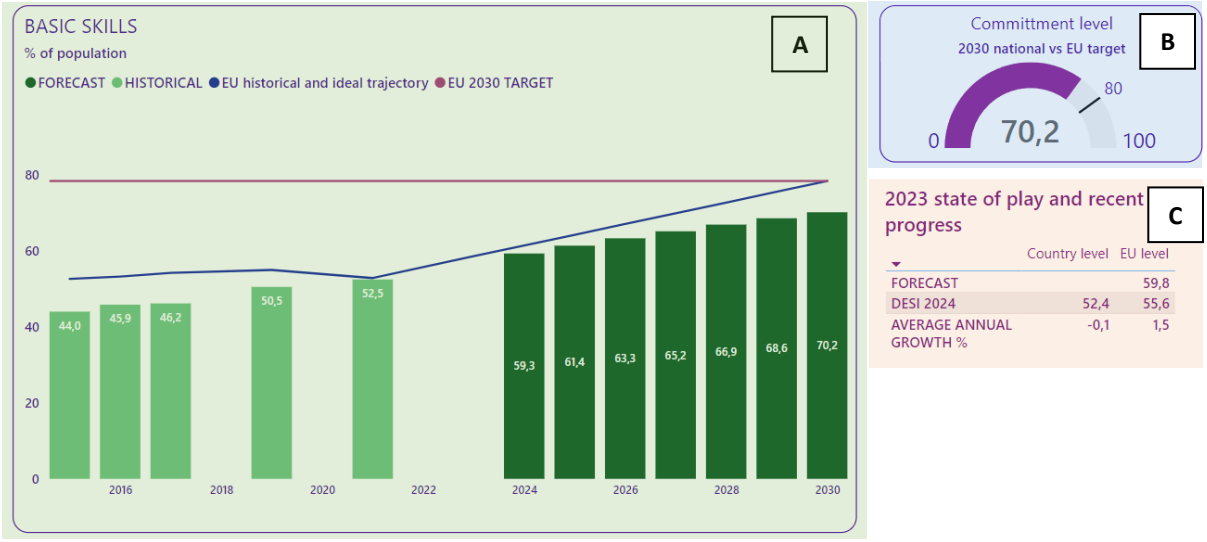
[14] For the indicator "ICT specialists in employment", some national roadmaps report the forecast values in absolute numbers of ICT specialists instead of percentage of total employment. In these cases, the percentage of ICT specialists employed with respect to total employment is calculated by using total employment at the national level as published by Eurostat for the broader age group (Eurostat code [enps_lfsa_pganws], year 2023).

[15] This should be correctly reflected in the forecast values of the national roadmaps.

The table in box C shows:

8. [Forecast] The 2023 predicted value of the KPI as indicated in the national roadmap by the Member State, if available, and as estimated along the EU-level ideal trajectory.
9. [DESI 2024] The KPI values for the year 2023, observed both at the country and EU levels, that are published in the 2024 version of the DESI dashboard. These values were not accessible during the preparation of national roadmaps. These values were published between mid-December 2023 and end of June 2024. Assessing the disparity between the observed and predicted 2023 values serves as a method to evaluate the reliability of forecasts at both national and EU levels.
10. [Average annual growth] The compound annual growth rate (CAGR), that is calculated based on the two most recent available data points. This rate is computed as annual average because some KPIs were not measured on an annual basis so far. CAGR makes it possible to compare growth rate values among different KPIs.

Figure 1: Example of dashboard for national trajectories



1.1.6 The KPI table in the country reports executive summary

Each Member State report contains in its Executive Summary (as Annex to the Communication on the State of the Digital Decade 2024) a summary table of the Digital Decade KPIs. That table lists:

- **Digital Decade KPIs:** in the order of apperance in the Country Report Staff Working Document. Data analytics now replaces Big Data. The new indicator on the take up of either AI, Cloud, or Data analytics is introduced in this version of DESI 2024.
- **DESI 2023**: the last comparable data. For most KPIs it is the value from 2022 except for Cloud, AI, basic digital skills of the population, and the digital intensity index for SMEs for which it is 2021. The Data Analytics value is the 2020 value of the former indicator 'Big data'. Note that since the publication of DESI 2023 in September 2023, some data might have been revised.
- **DESI 2024:** current level of the KPIs as measured in 2023 and reported in 2024.
- **Annual progress:** The compound annual growth rate (CAGR), that is calculated based on the two most recent available data points. Same value as in the dashboard (see the description of the dashboard in Sect. 1.1.5). Progress cannot be computed for 'Data Analytics' and the 'take up of either AI, Cloud, or Data analytics' since it is the first year of measurement for

these two indicators. For some Member States and for specific KPIs, methodological updates might prevent the calculation of this growth rate.

- **EU**: the same comments apply for the EU data on DESI 2024 and annual progress.
- **Digital Decade target by 2030 MS**: the target for 2030 as defined explicitely by the Member State in its national strategic roadmap. Coloured in green if in line with the EU 2030 target, in red if below. An 'x' denotes that no national target was set explicitely set by the Member State.
- **Digital Decade target by 2030 EU:** EU-level digital targets set out in Article 4 of the Digital Decade Policy Programme 2030.

1.1.7 Data sources

Most of the data in the DESI 2024 have been collected directly by national authorities, such as the National Statistical Institutes coordinated by Eurostat or National Regulatory Authorities. Table 6 presents the data sources and the role of national authorities in data collection and validation.

Table 6 Data sources

Data source	Data collection process
Eurostat	Data collected by National Statistical Authorities and verified by the National Statistical Authorities and Eurostat.
Communications Committee (COCOM)	Data collected and verified by the national regulatory authorities (by data experts appointed by the members of the Communications Committee in every Member State).
Broadband coverage studies	Data collected by IHS Markit, Omdia and Point Topic and verified by the national regulatory authorities (by data experts appointed by the members of the Communications Committee in every Member State).
e-Government benchmark	Data collected by Capgemini and verified by relevant ministries in every Member State.
Study for Digital Decade e-Health Indicators Development	Data collected by Capgemini Invent by means of a specific questionnaire submitted to representatives appointed by the relevant ministries in every Member State.

1.1.8 Data flags

A limited number of data points include explanatory notes (data flags), which can be consulted directly on the website of Eurostat at https://ec.europa.eu/eurostat/web/digital-economy-and-society. In particular, there is break in the series for the ICT specialists and Female ICT specialists indicators.

1.2 Methodological considerations

1.2.1 Indicator requirements

To be included in the DESI dashboard, indicators shall comply with the following requirements:

- *Must be collected on a regular basis*. In order to fulfil the monitoring function, the indicators used in the dashboard must be collected ideally on a yearly basis (or at least with a pre-defined regularity[16]).
- *Must be relevant for a policy area of interest*. All indicators in the dashboard must be accepted as relevant metrics in their specific policy areas.

1.2.2 Data updates and corrections

Updates and corrections are part of the lifecycle and nature of statistical data especially in the digital sector that is a rapidly moving environment. This is the case of several DESI indicators. There can be several reasons for such restatements. For example, it is typical that the values for one indicator undergo small amendments and only stabilise completely even long after the indicator was originally computed. Member States can also update their own methodology to collect the data for the indicators on which they report, for example to Eurostat, and revise backward the figures. Such revisions may impact Member States values of individual indicators.

The present report considers updates that were reported to the European Commission prior **to April 30, 2024**[17], that is the DESI 2024 data cut-off date for all indicators that had updated data or were new with respect To Whom It May Concern: the previous DESI edition (DESI 2023). Any changes made after this date are not considered in the current version of DESI.

[16] For the data sources mentioned under 1.1.7, annual data collection exercises are foreseen, except some of the data collected and verified by the national statistical offices or by Eurostat which may collected with a lower frequency.

[17] The cut-off date for data updating and backward revisions is set to 30 April 2024 for all the indicators included in the 2024 DESI dashboard but for ICT graduates (cutoff date 03/05/2024), e-Health (cutoff date 15/05/2024) and unicorns (cutoff date 29/01/2024, to reflect the state of play of the end of 2023).