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ANNEX 3 – PART 3/4

ANNEX

to the

**Communication from the Commission to the European Parliament, the Council, the
European Economic and Social Committee and the Committee of the Regions**

State of the Digital Decade 2024

Annex 3: Short EU 27 Member States reports



State of the Digital Decade 2024

Latvia

1 Executive Summary

Latvia has untapped potential to contribute to the EU's Digital Decade objectives and targets, in view of a successful digitalisation that fosters competitiveness, resilience, sovereignty, European values and climate action.

In 2023, Latvia made notable progress in the digitalisation of SMEs, the overall uptake of cloud and in the digitalisation of public services for businesses. However, particularly important **challenges persist** in improving citizens digital skills and strengthening the overall connectivity infrastructure, both gigabit and 5G.

Digitalisation is a priority for the Latvian authorities. It is included in several national strategies such as the **Digital Transformation Guidelines 2021-2027, Electronic Communications Sector Development Plan for 2021-2027, National Industrial Policy Guidelines (2021-2027)** and **National Development Plan 2021-2027**. Latvia ranks below the EU average for digital infrastructures, **despite** showing a strong annual growth. Latvia is progressing in the digitalisation of public services for **citizens** and **enterprises**, while at the same time falling **below** the EU average in basic digital skills, digitalisation of SMEs.

According to the **Special Eurobarometer 'Digital Decade 2024'**¹, 78% of Latvians consider that the digitalisation of daily public and private services is making their life easier, which is above the EU average of 73%.

Latvia is a member of the existing Alliance for Language Technologies EDIC (ALT EDIC) and Local Digital Twins towards CitiVERSE EDIC and is engaging in discussion on the setting up of Cancer Image Europe (EUCAIM) EDIC with an informal working group. The country also participates with indirect participants in the IPCEI Next Generation Cloud Infrastructure and Services².

The Latvian RRP dedicates 23% of the plan to foster the digital transition (EUR 416 million)³ with a focus on improving basic digital skills, increasing the uptake of digital solutions, and the number of ICT specialists. Under Cohesion Policy, an additional EUR 0.5 billion (11% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation⁴.

¹ Special Eurobarometer 551 on 'the Digital Decade' 2024: <https://digital-strategy.ec.europa.eu/en/news-redirect/833351>

² Information last updated on 31 May 2024.

³ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

⁴ This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

Digital Decade KPI ⁽¹⁾	Latvia			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024 (year 2023)	Annual progress	DESI 2024 (year 2023)	Annual progress	LV	EU
Fixed Very High Capacity Network (VHCN) coverage	62.7%	71.5%	13.9%	78.8%	7.4%	53%	100%
Fibre to the Premises (FTTP) coverage	60.9%	61.9%	1.6%	64.0%	13.5%	x	-
Overall 5G coverage	42.0%	53.1%	26.5%	89.3%	9.8%	70%	100%
Semiconductors		NA					
Edge Nodes		3		1 186		x	10 000
SMEs with at least a basic level of digital intensity	38.1%	48.2%	12.5%	57.7%	2.6%	90%	90%
Cloud	22.2%	29.0%	14.3%	38.9%	7.0%	75%	75%
Artificial Intelligence	3.7%	4.5%	10.3%	8.0%	2.6%	75%	75%
Data analytics	NA	36.9%	NA	33.2%	NA	75%	75%
AI or Cloud or Data analytics	NA	48.2%	NA	54.6%	NA		75%
Unicorns		0		263		2	500
At least basic digital skills	50.8%	45.3%	-5.5%	55.6%	1.5%	70%	80%
ICT specialists	4.4%	4.4%	0.0%	4.8%	4.3%	10%	~10%
eID scheme notification		Yes					
Digital public services for citizens	87.2	88.2	1.2%	79.4	3.1%	100	100
Digital public services for businesses	85.8	87.2	1.6%	85.4	2.0%	100	100
Access to e-Health records	78.8	84.8	7.6%	79.1	10.6%	100	100

⁽¹⁾ See the methodological note for the description of the indicators and other descriptive metrics

National Digital Decade strategic roadmap

With respect to **Latvia's** contribution to the Digital Decade reflected in its roadmap, it is demonstrating a **high ambition** and, based on this document, intends to allocate **significant effort** to achieve the Digital Decade objectives and targets.

The roadmap is overall ambitious and coherent including on objectives but with some weaknesses in the digitalisation of enterprises. The roadmap covers all objectives of the Digital Decade such as a human centred digital space, resilience and security, sovereignty, green, and protection of the society with a high level of ambition, especially on the human centricity, and sovereignty.

The roadmap includes all 2030 KPIs provides limited information on progress for **semiconductors, edge nodes and FTTP**. All, but three national targets (basic digital skills, gigabit and 5G connectivity) are aligned with EU 2030 targets. The roadmap does not provide a national target nor trajectory on FTTP nor edge nodes. In total, the roadmap presents 47 measures.

A public consultation on the roadmap resulted in extensive feedback including from the social partners and non-governmental organisations (NGOs). Latvia has taken this feedback, and the Commission's recommendations from the 2023 report on the Digital Decade into account in the version submitted.

The roadmap's total budget is **estimated at EUR 1 539 million** (about 4.5% of its GDP) with priorities set on developing unicorns, SME take-up and take-up of cloud/AI/big data. Some aspects require further effort, especially in raising the level of digital skills.

Recommendations for the roadmap

Latvia should, when submitting adjustments to its national roadmap in accordance with Article 8(3) of the DDPP Decision:

- **TARGETS:** (i) Propose a target and trajectory for FTTP and edge nodes. (ii) Align the level of ambition of targets for at least basic digital skills, VHCN, and 5G with the EU targets.
- **MEASURES:** (i) Strengthen measures and increase funding for at least basic digital skills, VHCN, and 5G to be able to align its national targets with the Digital Decade target. (ii) Increase funding for digitalisation of businesses and digital skills to be able to reach targets for digital intensity of SMEs, uptake of cloud, AI, data analytics, and for ICT specialists. (iii) Provide **more information on the implementation of digital rights and principles** (and Digital Decade general objectives), including what national measures contribute to it.

Digital rights and principles

The Special Eurobarometer 'Digital Decade 2024' reveals key insights into Latvian perceptions of digital rights. Only 42% of Latvians believe the EU protects their digital rights well, a significant 16-point decrease from last year, and 3 points lower than the EU average. Confidence in digital privacy is at 48%, also 3 points lower than the EU average. Concerns include the safety of digital environments for children (56% concerned) and control over personal data (38% concerned), with a notable decline in confidence. Positive trends include the importance of digital technologies for connecting with friends and family (90%), significantly above the EU average of 83%. The monitoring of the Declaration on Digital Rights and Principles shows that increasing the profile of the Declaration at national level and fostering better stakeholder engagement could help improve outcomes in the years to come⁵.

A competitive, sovereign and resilient EU based on technological leadership

When it comes to reaching a technological leadership for a competitive, sovereign, and resilient EU Latvia is falling behind on connectivity infrastructure, while showing impressive growth and ambition in terms of SMEs's digital uptake. In terms of FTTP coverage, Latvia is below the EU average with an annual growth rate significantly below the EU average. As regards VHCN and 5G coverage, Latvia also falls below the EU average, though in this case the growth rate is more consistent (above the EU average). Latvia has an uphill challenge to establish a good digital infrastructure. In this respect it is focusing on targeted public support measures to deploy of middle and last mile network segments. Latvia is showing progress in semiconductors and quantum computing, while demonstrating extremely limited initiatives in edge nodes. Furthermore, the indicators on the digitalisation of businesses (basic intensity of SMEs and take-up of data analytics, AI, or cloud) all point to a performance below the EU average, however, show a remarkable growth. Latvia is focusing on cybersecurity, demonstrated by the launch of their Cybersecurity Strategy 2023-2026, measures targeting cybersecurity infrastructure and multi-country collaboration, which is especially important due to their geopolitical position.

Recommendations – Latvia should:

- **CONNECTIVITY INFRASTRUCTURE:** (i) Continue the ongoing efforts to support VHCN, FTTP and significantly increase efforts for 5G rollout, including by fostering private investment and by stimulating take-up. (ii) Ensure sufficient access of new players to spectrum for innovative

⁵ See SWD 'Digital Decade in 2024: Implementation and perspective' with annexes, SWD(2024)260: <https://digital-strategy.ec.europa.eu/en/news-redirect/833325>, Annex 4.

business-to-business (B2B) and business-to-consumer (B2C) applications and encourage operators to speed up the deployment of 5G stand-alone core networks.

- **CYBERSECURITY:** (i) Implement cyber security classes in the formal education in relevant study programs; (ii) Continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.
- **EDGE NODES:** Consider measures specific to edge nodes deployment, supplementary to the IPCEI-CIS participation.
- **DIGITALISATION OF ENTERPRISES:** Establish and sustain ambitious initiatives to further increase the digitalisation of SMEs.
- **CLOUD/AI/DATA ANALYTICS:** (i) Continue, expand, and accelerate public and private investments in the uptake of Cloud/AI/Data analytics. (ii) Support the broad uptake of the next generation of cloud infrastructure and services under development in the IPCEI-CIS by companies of all sizes, including by liaising with the direct participants to develop a country-specific dissemination strategy reaching beyond the participating organisations.

Protecting and empowering EU people and society

Latvia is working towards delivering an inclusive digital transition. This will, however, require sustained and ambitious efforts to increase the level of digital skills of the population. The level of basic digital skills of the population is below the EU average; with a significant decrease compared to last years' report, due to post-COVID-19 effects (i.e., lower usage of ICT tools). Over the last years, Latvia has made the development of digital skills a national priority. The country has as a result integrated digital skills training at various stages, from early formal and non-formal education, employed people, adult learning, individual learning account approach, and e-learning. It is crucial that Latvia continues, sustains, and increases efforts to improve at least basic digital skills, as this impacts all the digital targets. Latvia is implementing measures specifically targeting girls and women, to boost their basic digital skills and increase the number of female ICT specialists, to maintain their performance above the EU average. The ambition of the EU's Digital Decade will require sustained efforts considering the relatively slow evolution of increase of digital skills. The digitalisation of public services, and development of e-health and e-ID is progressing well, above the EU average.

Recommendations – Latvia should:

- **BASIC DIGITAL SKILLS:** (i) Accelerate measures to further boost digital skills of the population and increase investments. (ii) Focus on implementing measures and digital literacy education for everyone.
- **ICT SPECIALIST:** Continue existing and implement additional measures targeting various groups to ensure an increase of ICT specialists, and improve gender balance.
- **e-HEALTH:** (i) Ensure that all data types are made available in a timely manner. (ii) Offer a mobile application for citizens to access their electronic health records. (iii) Connect more private rehabilitation centres to the online access service. (iv) Ensure that the online access service complies to web accessibility guidelines.
- **KEY PUBLIC SERVICES:** Ensure coordinated implementation of public services and work towards integration of public records with the view of implementing 'once-only' principle in public administration.

Leveraging digital transformation for a smart greening

Latvia has started to implement green policies in its digital transformation. The 2021-2027 Environmental Policy as well as Green ICT Procurement policy are examples of the interplay **between the** green and digital. However, most of the measures outlined in the Latvian roadmap are **cross-cutting** initiatives that by reduce environmental effects as a by-product, rather than actively targeting them.

Recommendations – Latvia should:

- Develop a coherent approach to twinning the digital and green transitions. First, promote improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs.
- Monitor and quantify the emission reductions of the deployed digital solutions in line with the relevant EU guidance and with the support of the methodology developed by the [European Green Digital Coalition](#), in view of future policy development, as well as of attracting relevant financing.



State of the Digital Decade 2024

Lithuania

1 Executive summary

Lithuania brings a positive contribution to the EU's digital decade objectives and targets, in view of a successful digitalisation that fosters competitiveness, resilience, sovereignty, European values and climate action.

In **2023, Lithuania made notable progress** in increasing the level of digital skills of its population and the number ICT specialists in employment, as well as improving 5G coverage. However, **challenges persist** particularly in the uptake of advanced technologies, such as AI and Cloud, by enterprises and in creating synergies between the digital and green transitions.

Digitalisation is a priority for Lithuanian authorities, included in the [National Progress Plan 2021-2030](#) that sets out the country's development directions, priorities, and principles in the different areas of state governance. Moreover, one of the five axes in the State Progress Strategy [Lithuania's vision for the future of Lithuania 2050](#) is a connected country with sustainable and well-balanced development.

According to the Special Eurobarometer 'Digital Decade 2024'⁶, **75% of Lithuanian citizens consider that the digitalisation of daily public and private services is making their lives easier**, which is slightly above the EU average (75%).

Lithuania is one of the members of the already established **European Digital Infrastructure Consortium** (EDIC) for the **Alliance for Language Technologies** (ALT-EDIC). In addition, Lithuania is developing the Statutes and other relevant documents of the possible future Genome EDIC and the possible future Connected Public Administration EDIC, within their informal working groups⁷.

The Lithuanian Recovery and Resilience Plan (RRP) includes 23.3% (EUR 724 million)⁸ of its budget to foster the digital transition. Its update, including a REPowerEU chapter, was approved in November 2023. The Lithuanian RRP presents a variety of measures to help businesses and citizens, improve public services, and speed up the digital transition in Lithuania through actions to digitalise the public and private sectors, support innovation and research, etc. Under cohesion policy, an additional EUR 309 million is allocated to the country's digital transformation⁹.

⁶ Special Eurobarometer 551 on 'the Digital Decade' 2024: <https://digital-strategy.ec.europa.eu/en/news-redirect/833351>

⁷ Information last updated on 31 May 2024.

⁸ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

⁹ This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund

Digital Decade KPI ⁽¹⁾	Lithuania			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024 (year 2023)	Annual progress	DESI 2024 (year 2023)	Annual progress	LT	EU
Fixed Very High Capacity Network (VHCN) coverage	78.0%	78.1%	0.1%	78.8%	7.4%	98%	100%
Fibre to the Premises (FTTP) coverage	78.0%	78.1%	0.1%	64.0%	13.5%	x	-
Overall 5G coverage	90.1%	98.9%	9.8%	89.3%	9.8%	100%	100%
Semiconductors		NA					
Edge Nodes		3		1 186		x	10 000
SMEs with at least a basic level of digital intensity	56.7%	60.0%	2.9%	57.7%	2.6%	90%	90%
Cloud	27.7%	33.6%	10.1%	38.9%	7.0%	75%	75%
Artificial Intelligence	4.5%	4.9%	4.3%	8.0%	2.6%	75%	75%
Data analytics	NA	40.5%	NA	33.2%	NA	75%	75%
AI or Cloud or Data analytics	NA	53.5%	NA	54.6%	NA		75%
Unicorns		2		263		6	500
At least basic digital skills	48.8%	52.9%	4.1%	55.6%	1.5%	80%	80%
ICT specialists	4.4%	4.9%	11.4%	4.8%	4.3%	6.9%	~10%
eID scheme notification		Yes					
Digital public services for citizens	83.9	86.7	3.4%	79.4	3.1%	100	100
Digital public services for businesses	94.4	95.9	1.7%	85.4	2.0%	100	100
Access to e-Health records	92.0	95.4	3.8%	79.1	10.6%	100	100

⁽¹⁾ See the methodological note for the description of the indicators and other descriptive metrics

National Digital Decade strategic roadmap

With respect to **Lithuania's** contribution to the Digital Decade, its roadmap demonstrates **high ambition**. Based on this document, the country intends to dedicate **some effort** to achieve the Digital Decade objectives and targets.

The Lithuanian roadmap is generally coherent and very ambitious in achieving the Digital Decade targets. It includes 2030 targets and trajectories for all KPIs except for FTTP and Edge nodes. They are all aligned with the EU targets, except for ICT specialists, which stands well below the EU targets. The roadmap covers all the objectives of the Digital Decade, such as a human-centred digital space, resilience and security, sovereignty, green, and protection of the society with a high level of ambition, focusing on human centricity, sovereignty, and the green dimension.

The roadmap includes 22 measures with a total budget of almost **EUR 1.5 billion**, taking into account the RRF, other EU funds and the national budget, which equate to around 2% of its GDP. Regarding the ICT specialists, more ambition is required in order to reach the EU target.

Recommendations for the roadmap

Lithuania should, when submitting adjustments to its national roadmap in accordance with Article 8(3) of the DDPP Decision:

- **TARGETS:** (i) Propose a target and develop a trajectory for Edge nodes. (ii) Clarify whether the target and trajectory of the 'Ultra-fast broadband coverage' corresponds to FTTP

networks only or if it includes other types of VHCN. If so, please formalise a target and develop a trajectory for the missing technologies. (iii) Align **the level of ambition of target** for the number of **ICT specialists with the EU target**.

- **MEASURES:** (i) Strengthen or better tailor the measures contributing to targets that are the most difficult to achieve especially as regards skills, ICT specialists, take up of AI and big data analytics; (ii) Propose measures in Semiconductors, Edge nodes and Quantum computing; (iii) Review the budget description of all presented measures, ensuring completeness and accuracy; (iv) Review description of measures to provide information on expected impacts; (v) Provide more information on the implementation of digital rights and principles (and Digital Decade general objectives), including what national measures contribute to it.
- **CONSULTATION:** Provide more details on the consultation of stakeholders.

Digital rights and principles

The Special Eurobarometer 'Digital Decade 2024' reveals key insights into Lithuanian perceptions of digital rights. Despite a 5-point decrease since last year, 57% of Lithuanians believe the EU protects their digital rights, above the EU average of 45%. Confidence in digital privacy rose to 52%, slightly above the EU average. Concerns, although increased by 5 and 10 points, respectively, over control of one's digital legacy (31%) and online safety for children (46%), still remain below the EU average. Many Lithuanians value digital technologies for connecting with friends and family (84%). These findings underscore the need for more prominent presence of digital rights and principles in Lithuania's roadmap and digital strategies¹⁰.

A competitive, sovereign and resilient EU based on technological leadership

For its technological leadership and competitiveness, **Lithuania can rely on good infrastructures** with a positive deployment dynamic, notably in 5G coverage, with 98.9% of the populated areas covered.

The indicators on the digitalisation of enterprises (basic intensity of SMEs and take-up of data analytics, AI, and cloud) show a generally positive dynamic, in particular in the basic intensity of SMEs. **Lithuania prioritises its start-up ecosystem, which is one of the engines of the Lithuanian economy**, contributing significantly to the country's innovation and technological progress. It ensures that Lithuanian companies can grow and become European champions able to compete globally. Lithuania also relies on its digital industry linked to **semiconductors production, especially lasers**, which form an indispensable part of the chip production chain and potentially quantum computers.

Recommendations – Lithuania should:

- **CONNECTIVITY INFRASTRUCTURE:** (i) Intensify efforts in the deployment of gigabit network, promoting public and private investments, especially in rural areas; (ii) Ensure sufficient access of new players to spectrum for innovative business-to-business (B2B) and business-to-consumer (B2C) applications and encourage operators to speed up the deployment of 5G stand-alone core networks.
- **CYBERSECURITY:** Continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.
- **AI/CLOUD/DATA ANALYTICS:** (i) Review the mix of measures to support the adoption of advanced digital technologies to guarantee the achievement of the ambitious targets; (ii)

¹⁰ See SWD 'Digital Decade in 2024: Implementation and perspective' with annexes, SWD(2024)260: <https://digital-strategy.ec.europa.eu/en/news-redirect/833325>, Annex 4.

Stimulate the adoption of next generation cloud infrastructure and services by companies of all sizes, including by liaising with the Cloud IPCEI Exploitation office and/or the coordinators and the Member States participating in the IPCEI-CIS.

Protecting and empowering EU people and society

Lithuania is well equipped to deliver an inclusive digital transition, but it will require sustained efforts to continue to raise the population's level of digital skills and train ICT specialists. The population's digital skills level remains slightly below the EU average while the share of ICT specialists has increased significantly over the last year. It is important given the Lithuanian economic dynamism where the ICT sector has an important role. The digital public services for citizens and businesses stand above the EU average, reflecting the country's high level of digitalisation. At the same time, the Eurobarometer 2024 results show the excellent rate of digital progress and future ambition perceived and expected by its citizens.

Recommendations – Lithuania should:

- **BASIC DIGITAL SKILLS:** Continue implementing initiatives to improve digital skills to ensure that no one is left behind.
- **ICT SPECIALISTS:** Continue implementing its efforts to increase the number of ICT specialists.

Leveraging digital transformation for a smart greening

The Lithuanian authorities do not yet focus on creating synergies between the digital and green transitions. This contrasts with 82% of Lithuanians, who think that ensuring digital technologies serve the green transition should be an important consideration for public authorities, according to the Eurobarometer 2024.

Although innovation for sustainability is one of the objectives of the National Progress Plan 2021-2030, and the roadmap presents a measure linked with sustainability, no specific progress in this respect has been reported in 2023. However, it should be noted that the RRP allocates 37.4% of its budget to climate targets, although these are not directly linked to fostering the digital transition.

Recommendations – Lithuania should:

- Lithuania should be more ambitious in synergising the digital and green transitions, focusing on the contribution that digital can bring toward sustainability, and also leveraging advanced technologies and scaling up successful initiatives, as well as proposing decarbonization measures and encouraging initiatives in responsible green technologies.
- Develop a coherent approach to twinning the digital and green transitions. First, promote improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs;
- Monitor and quantify the emission reductions of the deployed digital solutions in line with the relevant EU guidance and with the support of the methodology developed by the [European Green Digital Coalition](#), in view of future policy development, as well as of attracting relevant financing.



State of the Digital Decade 2024

Luxembourg

1 Executive summary

Luxembourg brings a very strong contribution to the EU's Digital Decade objectives and targets, in view of a successful digitalisation that fosters competitiveness, resilience, sovereignty, European values and climate action.

In 2023, Luxembourg made notable progress in the share of ICT specialists in employment and in increasing 5G coverage, including in the 3.4-3.8 GHz band. However, **some challenges** persist in at least basic digital skills and the adoption of advanced technologies (e.g., cloud) by enterprises.

Luxembourg fully subscribes to the EU's 2030 objectives for a digital transition which places people at the centre of the digitalisation of our EU society. The country performs already well in many of the Key Performance Indicators (KPI) and sets national targets for 2030 in line with the EU targets. Over the past few years, there has been more focus on digital issues and their growing political importance, which has resulted in the development and implementation of several initiatives to improve the digital performance of the country. Luxembourg can already rely on a very broad deployment of gigabit infrastructures and a very large number of ICT specialists in employment. The country also presents a high number of online public services for both people and businesses, including an e-health record for all. However, the availability of electronic medical data remains low. Luxembourg is currently placing cybersecurity at the core of its strategy for technological development and is developing a national data strategy. When it comes to the basic level of digital intensity of SMEs, the results in 2023 are still far from the EU target 2030, despite showing a positive dynamic.

According to the **'Special Eurobarometer Digital Decade 2024'**¹¹, 88% of the respondents in Luxembourg consider that the digitalisation of daily public and private services is making their lives easier (above the EU average 73%).

Luxembourg is very active in collaborating at EU level. Luxembourg is a member of the Local Digital Twins towards the CitiVERSE (LDT Citiverse) EDIC, the EUROPEUM-EDIC on blockchain and the Alliance for Language and Technology EDIC (ALT-EDIC), all already established. Luxembourg is developing the Statute and other documents for the possible future Mobility and Logistics Data EDIC and for the possible future Connected Public Administration EDIC (IMPACTS EDIC). Luxembourg offered to be the hosting Member State of the possible future Genome EDIC. The country is also participating in multi-country projects including IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS) with seven indirect partners, EuroHPC, and POTENTIAL¹².

Luxembourg's Recovery and Resilience plan (RRP) allocates 29.6% of its total RRP budget to the digital transformation (EUR 24.5 million)¹³ with a strong priority given to the modernisation of the public administration through digitalisation and the digitalisation of SMEs. Under Cohesion Policy, an additional EUR 6.8 million (18% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation¹⁴.

¹¹ Special Eurobarometer 551 on 'the Digital Decade' 2024: <https://digital-strategy.ec.europa.eu/en/news-redirect/833351>

¹² Information last updated on 31 May 2024.

¹³ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation

¹⁴ This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 Cohesion Policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

Digital Decade KPI ⁽¹⁾	Luxembourg			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024 (year 2023)	Annual progress	DESI 2024 (year 2023)	Annual progress	LU	EU
Fixed Very High Capacity Network (VHCN) coverage	93.3%	94.7%	1.5%	78.8%	7.4%	100%	100%
Fibre to the Premises (FTTP) coverage	76.2%	78.9%	3.5%	64.0%	13.5%	100%	-
Overall 5G coverage	93.2%	99.6%	6.9%	89.3%	9.8%	100%	100%
Semiconductors		NA					
Edge Nodes		8		1 186		x	10 000
SMEs with at least a basic level of digital intensity	53.9%	57.8%	3.6%	57.7%	2.6%	90%	90%
Cloud	29.0%	32.6%	6.0%	38.9%	7.0%	75%	75%
Artificial Intelligence	13.0%	14.4%	5.2%	8.0%	2.6%	75%	75%
Data analytics	NA	32.4%	NA	33.2%	NA	75%	75%
AI or Cloud or Data analytics	NA	52.0%	NA	54.6%	NA		75%
Unicorns		2		263		x	500
At least basic digital skills	63.8%	60.1%	-2.9%	55.6%	1.5%	80%	80%
ICT specialists	7.7%	8.0%	3.9%	4.8%	4.3%	10%	~10%
eID scheme notification		Yes					
Digital public services for citizens	94.8	94.8	0.0%	79.4	3.1%	100	100
Digital public services for businesses	96.7	96.7	0.0%	85.4	2.0%	100	100
Access to e-Health records	67.2	76.1	13.3%	79.1	10.6%	100	100

⁽¹⁾ See the methodological note for the description of the indicators and other descriptive metrics

National Digital Decade strategic roadmap

With respect to **Luxembourg's** contribution to the Digital Decade reflected in its roadmap, it is demonstrating a **high ambition** and, based on this document, intends to allocate **significant effort** to achieve the Digital Decade objectives and targets.

The roadmap of Luxembourg sets out a quite detailed plan of actions with 12 targets and trajectories demonstrating willingness to contribute to the EU's Digital Decade common objectives and targets. Most of the national targets and trajectories for 2030 are provided, except for edge nodes and unicorns. All targets presented are in line with EU target values.

The roadmap is consistent with the objectives of the Digital Decade including policies and measures addressing inclusion, resilience, cybersecurity, technological sovereignty, and sustainability.

The total budget of the measures presented in the national roadmap is estimated at EUR 309.5 million (about 0.39% of GDP) with priorities set on digital skills for all, support to national and European start-ups and scale-ups ecosystem with the goal to increase the number of European unicorns. A large number of measures is also dedicated to reach the objectives of the Digital Decade, in particular in cybersecurity, sovereign cloud, digital innovation, safety online, and accessibility of online services.

Recommendations for the roadmap

When adjusting its national roadmap in line with Article 8(3) of the Digital Decade Policy Programme (DDPP) Decision, Luxembourg should:

- **TARGETS:** (i) examine the opportunity of providing a target and trajectory for **unicorns**, (ii) provide a target and trajectory for **edge nodes**.
- **MEASURES:** (i) review and reinforce, if deemed necessary at this stage, measures to contribute to the targets that are the most challenging to reach, such as the **digital skills for all, the basic level of digital intensity for SMEs**, (ii) provide **more information on the implementation of digital rights and principles**, including what national measures contribute to it.

Digital rights and principles

The Special Eurobarometer 'Digital Decade 2024' reveals key insights into Luxembourg's perceptions of digital rights. Despite an 8-point decrease since last year, 56% of Luxembourgers believe the EU protects their digital rights, still above the EU average of 45%. Confidence in digital privacy is at 66%, higher than the EU average of 51%. Concerns have increased over the control of one's digital legacy (28%) and online safety for children (40%), both rising by 10 and 2 points respectively. Positive trends include the high importance of digital technologies for accessing public services online and connecting with friends and family (90%), significantly above the EU average of 83%. The monitoring of the Declaration on Digital Rights and Principles shows that increasing the profile of the Declaration at national level and fostering better stakeholder engagement could help improve outcomes in the years to come¹⁵.

A competitive, sovereign and resilient EU based on technological leadership

For its technological leadership and competitiveness, Luxembourg can rely on a strong connectivity infrastructure with very high level of coverage in VHCN and 5G. Luxembourg is on track to reach the 2030 EU targets for VHCN and 5G and is closely monitoring if the white areas can be covered by 2030. In terms of SMEs with basic level of digital intensity (57.8%), Luxembourg performs broadly at the EU level (57.7%). Recent annual progress might not be sufficient to reach the EU target of 90%, even though several measures are set out in the roadmap for the coming years. For businesses, in particular small ones, Luxembourg plans to make the adoption of advanced technologies easier by lowering the technical knowledge and financial entry barriers for businesses to use advanced technologies such as cloud, AI and data analytics. Luxembourg is also focusing on cybersecurity and setting up a sovereign national cloud to give businesses, including SMEs, located in Luxembourg maximum security and guarantees to deploy further in a data-driven economy.

Recommendations – Luxembourg should:

- **CONNECTIVITY INFRASTRUCTURE:** Ensure sufficient access of new players to spectrum for innovative business-to-business (B2B) and business-to-customer (B2C) applications and encourage operators to speed up the deployment of 5G stand-alone core networks.
- **CYBERSECURITY:** Continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.

¹⁵ See SWD 'Digital Decade in 2024: Implementation and perspective' with annexes, SWD(2024)260: <https://digital-strategy.ec.europa.eu/en/news-redirect/833325>, Annex 4.

- **DIGITALISATION OF ENTERPRISES:** Aim to reach the 2030 target by adopting further measures, when necessary, to convince less digitalised SMEs to engage in a digital transition to boost their growth.
- **CLOUD/AI/DATA ANALYTICS:** (i) Consider further awareness-raising measures and/or training directed at SMEs to adopt AI and data analytics as means to boost competitiveness. (ii) Support the broad uptake of the next generation of cloud infrastructure and services under development in the IPCEI-CIS by companies of all sizes, including by liaising with the direct participants to develop a country-specific dissemination strategy reaching beyond the participating organisations.

Protecting and empowering EU people and society

Luxembourg can rely on a high percentage of ICT specialists in employment (8.0%). Furthermore, in 2023, 60.1% of the population in Luxembourg had at least basic digital skills, which is above the EU average (55.6%). However, recent annual progress is slow, although equipping people with digital skills and fostering digital inclusion is a priority for Luxembourg. Dedicated measures are also in place to empower people, in particular the young ones, to use digital technologies safely and responsibly. Luxembourg is a front-runner in terms of digitalised public services for people (94.8) and businesses (96.7), already close to the 2030 EU target. It already has a national e-ID scheme in place to which citizen have access. The national EU Digital Identity Wallet is currently under development and is estimated to be in place in 2024. Luxembourg has an overall e-health maturity score of 76.1 in 2023, below the EU average 79.1. Although all citizens in Luxembourg have by default an electronic health record, the volume of health data accessible remains limited.

Recommendations – Luxembourg should:

- **BASIC DIGITAL SKILLS:** Strengthen the strategy to develop the population’s basic digital skills.
- **E-HEALTH:**(i) Make the data types of e-prescription and e-dispensation available to people through the online access service; (ii) Ensure that all data types are made available in a timely manner; (iii) Enhance the authentication method for logging into the online access service by using a notified e-ID; (vi) Increase the supply of health data by onboarding more categories of healthcare providers.

Leveraging digital transformation for a smart greening

In the national roadmap of Luxembourg, some measures which are in line with the general objectives, related to energy efficiency of digital sector, and the use of digital technologies for energy efficiency and sustainability of products and processes are mentioned. Reduction of energy costs are foreseen in line with the broad e-governance strategy of Luxembourg, hosting the GovCloud in data centres highly efficient in terms of energy use and cooling. The rollout of smart meters started in 2016 and is about to be completed.

Recommendations – Luxembourg should:

- Develop a coherent approach to twinning the digital and green transitions. First, promote improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs.
- Monitor and quantify the emission reductions of the deployed digital solutions in line with the relevant EU guidance and with the support of the methodology developed by the

[European Green Digital Coalition](#), in view of future policy development, as well as of attracting relevant financing.



State of the Digital Decade 2024

Malta

1 Executive summary

Malta brings a very strong contribution to the European Union's (EU) Digital Decade objectives and targets, in view of a successful digitalisation that fosters competitiveness, resilience, sovereignty, European values and climate action.

In 2023, Malta made notable **progress** in connectivity infrastructure, and specifically in the roll-out of fibre-to-the-premises (FTTP) networks, the uptake of Artificial Intelligence and Cloud by enterprises. However, FTTP networks remain to be fully deployed across the country and **challenges** persist in basic digital skills and in filling the ICT specialists' gap.

Digitalisation is a priority of Malta's authorities. [Malta Digitali](#) is the main strategy for 2022-2027. The country performs very well in several areas, and particularly in digital infrastructure, where it reached already the target VHCN and basic 5G coverage, and digital public services, already fully accessible to citizens and businesses. Moreover, Malta strategic approach focuses on a human-centred approach, recognizing the diverse digital needs across society, business, and government.

According to the Special Eurobarometer 'Digital Decade 2024'¹⁶, 80% of Malta's population consider that the digitalisation of daily public and private services is making their lives easier (above the EU average of 73%).

Malta is an observing country on the already established Alliance for Language Technologies European Digital Infrastructure Consortium (ALT EDIC)¹⁷.

Malta's Recovery and Resilience Plan (RRP) dedicates 26.2% to digital (EUR 68 million)¹⁸, with measures on digital skills, digitalisation of enterprises and of the public sector. Under cohesion policy, an additional EUR 129 million (17% of the country's total cohesion policy funding) is allocated to the country's digital transformation¹⁹.

¹⁶ Special Eurobarometer 551 on 'the Digital Decade' 2024: <https://digital-strategy.ec.europa.eu/en/news-redirect/833351>

¹⁷ Information last updated on 31 May 2024.

¹⁸ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

¹⁹ This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

Digital Decade KPI ⁽¹⁾	Malta			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024 (year 2023)	Annual progress	DESI 2024 (year 2023)	Annual progress	MT	EU
Fixed Very High Capacity Network (VHCN) coverage	100.0%	100.0%	0.0%	78.8%	7.4%	100%	100%
Fibre to the Premises (FTTP) coverage	56.2%	69.6%	23.8%	64.0%	13.5%	100%	-
Overall 5G coverage	100.0%	100.0%	0.0%	89.3%	9.8%	100%	100%
Semiconductors		NA					
Edge Nodes		21		1 186		x	10 000
SMEs with at least a basic level of digital intensity	72.8%	76.5%	2.5%	57.7%	2.6%	85%	90%
Cloud	47.5%	58.2%	10.7%	38.9%	7.0%	80%	75%
Artificial Intelligence	10.2%	13.2%	13.8%	8.0%	2.6%	27.2%	75%
Data analytics	NA	35.6%	NA	33.2%	NA	51.1%	75%
AI or Cloud or Data analytics	NA	68.3%	NA	54.6%	NA		75%
Unicorns		3		263		x	500
At least basic digital skills	61.2%	63.0%	1.5%	55.6%	1.5%	75%	80%
ICT specialists	5.0%	4.7%	-6.0%	4.8%	4.3%	8%	~10%
eID scheme notification		Yes					
Digital public services for citizens	100.0	100.0	0.0%	79.4	3.1%	100	100
Digital public services for businesses	97.2	100.0	2.9%	85.4	2.0%	100	100
Access to e-Health records	77.6	88.0	13.4%	79.1	10.6%	100	100

⁽¹⁾ See the methodological note for the description of the indicators and other descriptive metrics

National Digital Decade strategic roadmap

With respect to **Malta's** contribution to the Digital Decade reflected in its roadmap, it is demonstrating a **high ambition**, however, based on this document, intends to allocate **very significant effort** to achieve the Digital Decade objectives and targets.

The roadmap is overall coherent with the efforts needed in all the dimensions of digitalisation. The Maltese roadmap includes **66 measures** with a total budget of **EUR 214.65 million (1.5% of GDP) covering most of the targets**. In total, three targets (i.e., VHCN, 5G and Digital Public Service for Citizen) have already been reached, while five others align with EU's 2030 targets. However, according to the Country's roadmap, three national targets (**basic digital skills**, number of **ICT specialist** and **SMEs** with at least a basic level of digital intensity) fall slightly below the EU targets. This seems related to the estimation algorithm used to project historical values up to 2030. Trajectories for **edge nodes**, **e-Health** and **unicorns** are missing. Although the roadmap covers nearly all objectives of the Digital Decade, some aspects may require more effort. For instance, elements related to the green and digital activities are notably underreported in the roadmap.

Recommendations for the roadmap

Malta should, when submitting adjustments to its national roadmap in accordance with Article 8(3) of the DDPP Decision:

- **TARGETS:** (i) Propose a target and trajectory for edge nodes and unicorns and formalise the trajectory for FTTP and eHealth (ii) Align the level of ambition of targets for the Digital Skills, ICT specialists and SME with at least basic digital intensity to the corresponding EU targets.
- **MEASURES:** (i) Strengthen the measures contributing to targets that are the most difficult to achieve, notably those on digital skills, ICT specialists and digitalisation of enterprises; (ii) Review the budget description of all presented measures, duly highlighting EU sources such as the Recovery and Resilience Facility (RRF); (iii) Report what are the most important public support measures or private sector initiatives that are going to be implemented in the country contributing to the objective of assessing and monitoring the impact of the digital transformation on the green transition. (iv) Provide more information on the implementation of digital rights and principles (and Digital Decade general objectives), including what national measures contribute to it.
- **CONSULTATION:** Report on the consultation of stakeholders on the roadmap.

Digital rights and principles

The Special Eurobarometer 'Digital Decade 2024' reveals key insights into Maltese perceptions of digital rights. Despite a significant 16-point decrease, 49% believe the EU protects their digital rights, slightly above the EU average of 45%. Confidence in digital privacy stands at 56%, also higher than the EU average of 51%. Concerns have increased significantly, with 55% worried about online safety for children, up 24 points, and 36% about control over personal data, up 16 points. Positive trends include the high importance of digital technologies e.g., for connecting with friends and family (86%), above the EU average of 83%. The monitoring of the Declaration on Digital Rights and Principles shows that increasing the profile of the Declaration at national level and fostering better stakeholder engagement could help improve outcomes in the years to come²⁰.

A competitive, sovereign and resilient EU based on technological leadership

Malta can rely on good infrastructure and good uptake of technologies by businesses. Malta already reached 100% coverage for VHCN and 5G, in 2020 and 2022 respectively. However, 5G coverage in the 3.4–3.8 GHz bands remains limited, i.e., 24.7% versus 50.6% at the EU level. Moreover, despite the strong positioning on digital infrastructure, Malta currently has no known edge node deployment plans.

The indicators on the digitalisation of enterprises (basic intensity of SMEs and take-up of data analytics, AI and cloud) show values equal or above the EU average. The SME ecosystem is very dynamic, with 66.1% of SMEs having at least a basic level of digital intensity in 2023. On cloud computing, AI and data analytics various entities have initiated measures to facilitate technology adoption, placing Malta well above the EU average in almost all areas. In 2023 there were three unicorns in Malta, while the country continues focusing on developing an agile and conducive start-up ecosystem.

Malta is part of the European semiconductor ecosystem, specialising in back-end packaging operations which mainly cater to the automotive and telecommunications sectors, and is part of the Important Projects of Common European Interests (IPCEIs). Regarding quantum technologies, the country is active in QuantERA, a European network of public organisations funding quantum-related research and innovation projects.

²⁰ See SWD 'Digital Decade in 2024: Implementation and perspective' with annexes, SWD(2024)260: <https://digital-strategy.ec.europa.eu/en/news-redirect/833325>, Annex 4.

Recommendations – Malta should:

- **DIGITALISATION OF BUSINESSES AND AI/CLOUD/DATA ANALYTICS:** (i) Continue implementing policies in the area of digitalisation of businesses. In particular, Malta should further facilitate access to secure and sovereign advanced digital technologies and solutions and encourage investment in digital research and innovation; (ii) Raise awareness about the benefits of digital technologies and increase participation in existing funding schemes, especially among the many family-owned micro, small and medium-sized businesses making up Malta’s economy. (iii) Stimulate the adoption of next generation cloud infrastructure and services by companies of all sizes, including by liaising with the Cloud IPCEI Exploitation office and/or the coordinators and the Member States participating in the IPCEI-CIS.
- **CYBERSECURITY:** Continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.
- **CONNECTIVITY INFRASTRUCTURE:** Ensure sufficient access of new players to spectrum for innovative business-to-business (B2B) and business-to-consumer (B2C) applications and encourage operators to speed up the deployment of 5G stand-alone core networks.

Protecting and empowering EU people and society

Digital skills remain crucial to ensure that Maltese citizens have access to and make use of the available digital infrastructure to achieve the Digital Decade targets. Several initiatives have been implemented in recent years to incentivise individuals to attain at least basic digital skills, and to enhance levels of ICT employment. In 2023, Malta remains above the EU average, with 63% of the population having basic digital skills compared to the EU average of 55.6%. However, the share of ICT specialists in employment remains stagnant in Malta (4.7% vs the EU average of 4.8%), and it remains low in comparison to the required demand. Women are under-represented. The shortage of digital skills is partly addressed by Malta’s National e-Skills Strategy 2022-2025 which provides a framework for evaluating existing initiatives and introducing new ones, to promote basic and above basic digital skills and tools that can translate into increased employment.

Malta is a leader in the provision of key digital public services and performs very well in the implementing and giving access to electronic health records.

Recommendations – Malta should:

- **BASIC DIGITAL SKILLS:** Continue encouraging people to take part in digital skills trainings by raising awareness and facilitating access, with a special focus on vulnerable groups.
- **ICT SPECIALISTS:** Continue skills forecasting and improve cooperation with industry and the civil society to regularly evaluate and adjust education and training offers to labour market needs and encourage women to become ICT specialists.
- **E-HEALTH:** Offer a mobile application for citizens to access their electronic health records. Increase the supply of health data by onboarding more categories of healthcare providers.

Leveraging digital transformation for a smart greening

Malta’s movement to the twinning digital and green transition is slowly ramping up. It is primarily taking place in foreign direct investment operating enterprises and cascading into indigenous enterprises. The Ministry for Environment, Energy and Regeneration of the Grand Harbour has introduced Malta’s Sustainable Development Strategy for 2050 and opened it for public consultation. The Strategy is an ambitious document

that translates [Malta's Sustainable Development Vision for 2050](#) into a strategic policy direction for the environmental protection and socio-economic development of the Maltese Islands.

Recommendations – Malta should:

- Develop a coherent approach to twinning the digital and green transitions. First, promote improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs.
- Monitor and quantify the emission reductions of the deployed digital solutions in line with the relevant EU guidance and with the support of the methodology developed by the [European Green Digital Coalition](#), in view of future policy development, as well as of attracting relevant financing.



State of the Digital Decade 2024

The Netherlands

1 Executive Summary

The Netherlands brings a very strong contribution to the EU's Digital Decade objectives and targets, in view of a successful digitalisation that fosters competitiveness, resilience, sovereignty, European values and climate action.

In 2023, The Netherlands made notable progress in rolling out its fibre network and in the area of basic digital skills, particularly with regards to strengthening knowledge of digitalisation and digital tools. However, important **challenges persist** in filling the ICT specialists' gap and close attention should also be given to companies' continued adoption of advanced technologies, such as artificial intelligence (AI) and cloud.

Digitalisation in the Netherlands is seen as an opportunity to grow, be more **competitive and resilient**. Its strategies, including the [Dutch Strategy for the Digital Economy](#) and the [Dutch Value-Driven Digitalisation Work agenda](#), address priorities spanning digital skills and knowledge, high-performance digital infrastructure and technological innovation, but also digital trust, inclusiveness, transparency and cybersecurity. Other noteworthy strategies include the [National Technology Strategy](#) to promote technological sovereignty and the [Cybersecurity Strategy](#) for enhanced action against cyber threats.

According to the **Special Eurobarometer 'Digital Decade 2024'**²¹, 83% of the Dutch population consider that the digitalisation of daily public and private services is making their lives easier. This is one of the highest scores in the EU and markedly above the EU average of 73%.

The Netherlands is involved in several **European Digital Infrastructure Consortia (EDICs)**. Notably, it is expected to be the hosting Member State of the possible future **EDIC for Mobility and Logistics Data and**, with France, it is one of the potential host Member State of the possible future **Digital Commons EDIC**. The country is a member of the **Alliance for Language Technologies (ALT) EDIC** – one of the first EDICs ever set up and which addresses the scarcity of European language data needed for AI solutions. It is also developing the Statute and other relevant documents of the possible future **Cybersecurity Skills Academy EDIC** and the possible future **Genome EDIC**, both within informal Working Groups. Finally, the Netherlands is concluding membership negotiations with the **Local Digital Twins towards the CitiVERSE – EDIC**²²(already set up).

The Dutch Recovery and Resilience Plan (RRP) dedicates around 26% of its funds to digital policy (about EUR 1.2 billion)²³. Priority is given to investments in innovative digital technologies, notably quantum and AI, the development of digital skills at different levels of the education system and the increased digitalisation of public services. Under Cohesion Policy, an additional EUR 200 million (11% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation²⁴.

²¹ Special Eurobarometer 551 on 'the Digital Decade' 2024: <https://digital-strategy.ec.europa.eu/en/news-redirect/833351>

²² Information last updated on 31 May 2024.

²³ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

²⁴ This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

Digital Decade KPI ⁽¹⁾	The Netherlands			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024 (year 2023)	Annual progress	DESI 2024 (year 2023)	Annual progress	NL	EU
Fixed Very High Capacity Network (VHCN) coverage	97.8%	98.3%	0.5%	78.8%	7.4%	99.6%	100%
Fibre to the Premises (FTTP) coverage	63.4%	77.7%	22.6%	64.0%	13.5%	99.6%	-
Overall 5G coverage	100.0%	100.0%	0.0%	89.3%	9.8%	100%	100%
Semiconductors		NA					
Edge Nodes		27		1 186		x	10 000
SMEs with at least a basic level of digital intensity	75.3%	78.6%	2.2%	57.7%	2.6%	88.2%	90%
Cloud	60.2%	57.4%	-2.4%	38.9%	7.0%	82%	75%
Artificial Intelligence	13.1%	13.4%	1.1%	8.0%	2.6%	75%	75%
Data analytics	NA	48.6%	NA	33.2%	NA	40%	75%
AI or Cloud or Data analytics	NA	70.9%	NA	54.6%	NA	75%	75%
Unicorns		30		263		x	500
At least basic digital skills	78.9%	82.7%	2.4%	55.6%	1.5%	x	80%
ICT specialists	7.2%	6.9%	-4.2%	4.8%	4.3%	9.2%	~10%
eID scheme notification		Yes					
Digital public services for citizens	84.6	85.9	1.5%	79.4	3.1%	x	100
Digital public services for businesses	89.4	86.7	-3.1%	85.4	2.0%	x	100
Access to e-Health records	69.4	72.5	4.5%	79.1	10.6%	x	100

⁽¹⁾ See the methodological note for the description of the indicators and other descriptive metrics

National Digital Decade strategic roadmap

With respect to the Netherlands' contribution to the Digital Decade reflected in its roadmap, it is demonstrating **some ambition**. However, based on this document, the country intends to allocate **significant effort** to achieve the Digital Decade objectives and targets.

The Dutch roadmap is coherent, but only partly reflects the efforts needed to achieve the Digital Decade targets. It includes 2030 targets for **9 key performance indicators (KPIs)**, but some crucial targets and trajectories like **edge nodes, unicorns, basic digital skills, digital public services for citizens and businesses and access to e-health records** are missing.

Most national targets are in line with the EU's 2030 targets, while **the take-up by enterprises of data analytics and the level of ICT specialists in employment** fall below. The Netherlands maintains in several instances that it is fully committed to realising the EU targets by 2030 and aims to include all of them in the roadmap's future revision. The roadmap covers all Digital Decade objectives, namely digital citizenship, fostering technological leadership and sovereignty and contributing to the green transition.

There are **55 measures**, corresponding to a total budget **estimated at EUR 5.4 billion** (about 0.5% of the GDP), although many measures have no indicated budget and others include approximations. The priorities are set on the digitalisation of key public services, semiconductors and quantum technologies. Some comprehensive efforts have been undertaken, particularly regarding ICT specialists and more targeted efforts for the digitalisation of enterprises, but more could still be done. Some sections, including on creating synergies

between the digital and green transitions, could benefit from being more explicit on the planned actions and expected results.

Recommendations for the roadmap

The Netherlands should, when submitting adjustments to its national roadmap in accordance with Article 8(3) of the Digital Decade Policy Programme (DDPP) Decision:

- **TARGETS:** (i) Propose a target and trajectory for **edge nodes, unicorns, at least basic digital skills, digitalisation of public services, and access to e-Health records**; (ii) Align the **level of ambition** of targets for **VHCN, SMEs with at least a basic level of digital intensity, the take-up of data analytics by enterprises and ICT specialists** with the corresponding EU targets.
- **MEASURES:** (i) Strengthen the measures contributing to targets that are the most difficult to achieve, including **on ICT specialists and the digitalisation of SMEs**; (ii) Review the budget description of all presented measures, duly highlighting EU sources such as the Recovery and Resilience Facility (RRF); (iii) Refer more concretely on actions and implementation of certain measures, particularly related to the Digital Decade objectives, as well as their expected outcomes; (iv) Provide more information on the implementation of digital rights and principles (and Digital Decade general objectives), including on contributing measures.
- **CONSULTATION:** Provide additional detail on the stakeholder consultation process of the roadmap.

Digital rights and principles

The Special Eurobarometer 'Digital Decade 2024' reveals key insights into Dutch perceptions of digital rights. Despite a 12-point decrease, 45% of Dutch respondents believe the EU protects their digital rights, aligning with the EU average. Confidence in digital privacy is at 54%, above the EU average of 51%. Concerns have risen significantly, with 63% worried about the online safety for children, up 10 points, and 58% about the control of one's digital legacy, up 8 points. Positive trends include the high importance of digital technologies for accessing public services (91%) and connecting with friends and family (87%), both above the EU average of 83%. The monitoring of the Declaration on Digital Rights and Principles shows that increasing the profile of the Declaration at national level and fostering better stakeholder engagement could help improve outcomes in the years to come²⁵.

A competitive, sovereign and resilient EU based on technological leadership

The Netherlands is leveraging its strong digital infrastructure, knowledge base and research community to achieve technological leadership and competitiveness. However, there is room to improve investments in research and development (R&D), apply key digital technologies and create a conducive environment for tech businesses and start-ups. Progress is manifest, as borne out by the Netherlands having achieved the Gigabit target and 100% 5G coverage in 2022, although more work is needed on high-speed broadband subscriptions and industrial 5G development. On high-speed broadband, the Netherlands has achieved only 4.13% of fixed broadband subscriptions with speeds > 1 Gbps, much lower than the EU average of 18.5%. On industrial 5G, the recent launch of the 3.6GHz auction band for 5G is a positive development, but roll-out will be essential to enable advanced applications requiring large spectrum bandwidth.

While indicators on the digitalisation of enterprises generally surpass the EU average, with 78.6% of SMEs reporting having at least a basic level of digital intensity, the Dutch government highlights there is a need for

²⁵ See SWD 'Digital Decade in 2024: Implementation and perspective' with annexes, SWD(2024)260: <https://digital-strategy.ec.europa.eu/en/news-redirect/833325>, Annex 4.

more public and private funds to scale up successful digital technologies like AI applications and to exceed EU levels of digital technology adoption, in line with the Netherlands' aspirations. Initiatives like Quantum Delta NL and PhotonDelta will remain pivotal for the country's long-term competitive advantage. On digital sovereignty, the Netherlands has taken the lead in analysing digital technology risks, identifying high-priority critical technologies and committing to innovation and industrial policies. On cybersecurity, the Netherlands is focusing on enhancing cyber awareness, cyber skills and upholding democratic and human rights globally.

Recommendations – The Netherlands should:

- **CONNECTIVITY INFRASTRUCTURE:** Ensure sufficient access of new players to spectrum for innovative B2B and B2C applications and encourage operators to speed up the deployment of 5G stand-alone core networks.
- **CYBERSECURITY:** Continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.
- **AI/CLOUD/DATA ANALYTICS:** (i) Continue to support the adoption of advanced digital technologies, with particular attention to scaling up successful AI innovations and improving access to finance, data, and computing infrastructure. (ii) Ensure the broad uptake of the next generation of cloud infrastructure and services under development in the IPCEI-CIS by companies of all sizes, including by developing a country-specific dissemination strategy; contribute to the dissemination activities led by the Cloud IPCEI Exploitation Office; consider measures specific to edge nodes deployment, supplementary to the IPCEI-CIS participation.
- **QUANTUM/SEMICONDUCTORS:** Continue to secure public funding and stimulate private investments to capitalise its competitive advantage in the areas of semiconductors and quantum technologies, while maintaining a good business environment for long-term digital innovation.

Protecting and empowering EU people and society

With a highly digitalised economy and society, the Netherlands is committed to, and progressing well towards, ensuring digital inclusion for its population and workers, strengthening knowledge of digitalisation and empowering society against disinformation. However, more can be done to address the gaps in the ICT jobs market. Efforts to improve digital skills have surpassed EU targets, with 82.7% of the population possessing at least basic digital skills, the highest score in the EU. Further national-level initiatives, such as integrating digital literacy in school curricula, could enhance skills levels and help the Netherlands achieve an even more ambitious target. On ICT specialists, the government has further developed its flagship initiative, the Action Plan on Green and Digital Jobs, while also investing in partnerships to accelerate the training, retraining, and upskilling of ICT people. Although ICT specialists account for 6.9% of the Netherlands' employed population, outpacing the EU average of 4.8%, challenges remain in meeting the needs of the market and ensuring there is a strong availability of talent. The digitalisation of public services and e-ID development are overall on track, although the Netherlands should maintain its focus to prevent future stagnation in the digitalisation of services for businesses, where it currently scores 86.7 out of 100, as well as to improve the availability of a more diverse range of medical data types for citizens online. With an overall high score (85.9 out of 100) for digital public services for citizens and with many planned measures, the Netherlands aims to enhance the interoperability, proactiveness and accessibility of these services.

Recommendations – The Netherlands should:

- **BASIC DIGITAL SKILLS:** Introduce measures to help concretise national plans to boost digital skills and awareness in schools, to complement the ongoing efforts at local and regional level to ensure digital inclusion.
- **ICT SPECIALISTS:** Closely monitor the implementation of existing measures and partnerships to upskill and retain ICT specialists, including women. Design incentive schemes to increase the attractiveness of STEM disciplines, particularly for girls, and to boost the number of young people interested in taking up ICT-related studies or careers. Further reinforce collaboration between industries, education institutions and the public administration to improve the link between vocational education and the labour market needs.
- **E-HEALTH:** Make more health data types available to citizens through the online access service and increase the supply of health data by onboarding more categories of healthcare providers.

Leveraging digital transformation for a smart greening

The Netherlands recognises the need to enhance sustainability in the ICT sector, with a focus on coordinating governmental actions to reduce energy consumption in ICT devices and infrastructure like data centres. Challenges include providing tools, cost information for sustainable choices, and reliable metrics to measure impact. An interdepartmental committee is making progress to draft a national action plan linking the digital and green transitions.

Recommendations – The Netherlands should:

- Continue developing a coherent approach to twinning the digital and green transitions, including by supporting relevant pilots. First, continue to promote energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs.
- Monitor and quantify the emission reductions of the deployed digital solutions in line with the relevant EU guidance and with the support of the methodology developed by the [European Green Digital Coalition](#), in view of future policy development, as well as of attracting relevant financing.



State of the Digital Decade 2024

Poland

1 Executive summary

Poland has scope to improve its performance to contribute to the EU's Digital Decade objectives and targets, in view of a successful digitalisation that fosters competitiveness, resilience, sovereignty, European values and climate action.

In 2023, Poland made notable progress in the area of gigabit connectivity and digitalisation of SMEs. However, **challenges persist** in the area of digital skills and adoption of advanced technologies, such as AI and data analytics, by enterprises.

Significant resources are dedicated to improving connectivity, enhancing enterprises' use of digital technologies, and developing **digital public services** that should improve the competitiveness of the Polish economy and boost the whole society's use of digital technology. Poland will also invest in the **production of semiconductors** and participate in **projects to build quantum computers**.

The Polish population recognises importance of digitalisation: according to the Special Eurobarometer 'Digital Decade 2024'²⁶, **81% of Poles consider that the digitalisation of daily public and private services is making their lives easier**. This is one of the highest scores in the EU and markedly above the EU average of 73%.

Poland is a member of the **Alliance for Language Technologies European Digital Infrastructure Consortium (ALT-EDIC)** and applied to join the **European Digital Infrastructure Consortium for European Blockchain Partnership and European Blockchain Service Infrastructure (EUROPEUM EDIC)**. It also participates in the **Important Projects of Common European Interest on Next Generation Cloud Infrastructure and Services (IPCEI-CIS)** and **on Microelectronics and Communication Technologies (IPCEI-ME/CT)**²⁷.

Poland's **recovery and resilience plan dedicates 21% to digital policy (EUR 7.4 billion)**²⁸, with the bulk of the investment going to broadband deployment, improving digital skills, digitalisation of public services, and to e-health and cybersecurity. Under cohesion policy programmes, an additional EUR 5.7 billion (8% of the country's total cohesion policy funding) is allocated to the country's digital transformation²⁹.

²⁶ Special Eurobarometer 551 on 'the Digital Decade' 2024: <https://digital-strategy.ec.europa.eu/en/news-redirect/833351>

²⁷ Information last updated on 31 May 2024.

²⁸ The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.

²⁹ This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund

Digital Decade KPI ⁽¹⁾	Poland			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024 (year 2023)	Annual progress	DESI 2024 (year 2023)	Annual progress	PL	EU
Fixed Very High Capacity Network (VHCN) coverage	70.7%	81.1%	14.6%	78.8%	7.4%	100%	100%
Fibre to the Premises (FTTP) coverage	59.5%	75.4%	26.7%	64.0%	13.5%	100%	-
Overall 5G coverage	63.4%	71.9%	13.4%	89.3%	9.8%	100%	100%
Semiconductors		NA					
Edge Nodes		44		1 186		370	10 000
SMEs with at least a basic level of digital intensity	39.8%	50.0%	12.1%	57.7%	2.6%	90%	90%
Cloud	19.2%	46.5%	55.6%	38.9%	7.0%	75%	75%
Artificial Intelligence	2.9%	3.7%	13.0%	8.0%	2.6%	10%	75%
Data analytics	NA	19.3%	NA	33.2%	NA	35%	75%
AI or Cloud or Data analytics	NA	51.8%	NA	54.6%	NA		75%
Unicorns		11		263		20	500
At least basic digital skills	42.9%	44.3%	1.6%	55.6%	1.5%	80%	80%
ICT specialists	3.7%	4.3%	16.2%	4.8%	4.3%	6%	~10%
eID scheme notification		Yes					
Digital public services for citizens	59.9	63.7	6.4%	79.4	3.1%	100	100
Digital public services for businesses	72.7	72.9	0.2%	85.4	2.0%	100	100
Access to e-Health records	86.4	90.0	4.2%	79.1	10.6%	100	100

⁽¹⁾ See the methodological note for the description of the indicators and other descriptive metrics

National Digital Decade strategic roadmap

With respect to **Poland's** contribution to the Digital Decade reflected in its roadmap, it is demonstrating a **very high ambition** and, based on this document, intends to allocate **significant effort** to achieve the Digital Decade objectives and targets. although **the formal adoption of the roadmap at the national level** which is crucial for the country to fully commit towards these ambitions, **is still pending**.

Poland's draft roadmap³⁰ is ambitious and coherent, though there are some weaknesses regarding digital competences and digitalisation of enterprises. It includes trajectories and national-level targets for all key performance indicators **except for VHCN**.³¹ The national targets are mostly aligned with the EU's 2030 targets, except for **ICT specialists, take-up of data analytics and take-up of AI**, where they are lower.

The roadmap identifies key challenges for Poland and covers all Digital Decade objectives, with a high level of ambition for sovereignty and competitiveness, integration of new technologies, inclusive public services, and cybersecurity. Other dimensions like enhancing digital competences and the green transition could be further developed. It contains also general presentation of expected impacts.

³⁰ On 30 January 2024, the Polish authorities shared with the Commission a draft roadmap, which has yet to be formally endorsed by the Council of Ministers. At the time of writing, this formal endorsement has yet to take place, hence this report relies on the draft provided in January, which may differ slightly from the final roadmap currently in the adoption process.

³¹ However, it provides a trajectory for FTTP, with target of 100% by 2030, which implies the target for VHCN will also be achieved by that time.

There are **52 measures**, and their **total budget is estimated at EUR 12.4 billion** (about 1.6% of GDP), with priorities set on gigabit connectivity, digitalisation of enterprises, semiconductors, and e-health. Some aspects require more effort, especially on basic digital skills and ICT specialists and adoption of advanced technologies, such as AI and data analytics, by enterprises.

Recommendations for the roadmap

Poland should, when submitting adjustments to its national roadmap in accordance with Article 8(3) of the DDPP Decision:

- **TARGETS:** (i) Consider aligning with EU targets **the level of ambition of targets** for the number of **ICT specialists** and for **enterprises' take-up of AI and data analytics**.
- **MEASURES:** (i) Strengthen measures contributing to the targets that are the most difficult to achieve in particular for **digital skills**. (ii) Review the description of measures on the **digitalisation of businesses and connectivity** to clarify their contribution to specific KPI. (iii) Provide **information on relevant measures at regional level**, including regional operational programmes funded from the cohesion policy. (iv) Provide information about the **estimated investment gap, where this was not available** (i.e., on digital skills, ICT specialists, semiconductors, edge nodes, implementation of key digital online public services, e-health and e-ID). (v) Provide **more information on the implementation of digital rights and principles** (and Digital Decade general objectives), including what national measures contribute to it.

Digital rights and principles

The Digital Decade Eurobarometer reveals key insights into Polish perceptions of digital rights. 66% of Poles believe the EU protects their digital rights, significantly above the EU average of 45%. Confidence in digital privacy is at 68%, higher than the EU average of 51%. Despite rising EU-wide concerns about online safety for children (up 10 points) and control over personal data (up 5 points), 59% and 64% of Poles, respectively, remain confident. Positive trends include the high importance of digital technologies for connecting with friends and family (82%) and accessing public services (82%), both aligning with the EU average of 83%. The monitoring of the Declaration on Digital Rights and Principles shows that increasing the profile of the Declaration at national level and fostering better stakeholder engagement could help improve outcomes in the years to come³².

A competitive, sovereign and resilient EU based on technological leadership

To enhance its competitiveness, Poland needs to reach complete coverage of gigabit connectivity and boost the digitalisation of businesses. It must also overcome delays in deployment of the 5G network.

Poland appears to be on track to reach 100% VHCN coverage by 2030, although the last deployments might prove more difficult to achieve. The development of 5G is late, primarily due to the delayed authorisation of the 5G pioneer bands; only the 3.4-3.8 GHz band has been assigned so far. As a result, industrial 5G is yet to be developed. Moreover, the European Electronic Communications Code (Directive (EU) 2018/1972) has still to be transposed into national law, making Poland the last country in the EU that had not adjusted its electronic communications framework.

³² See SWD 'Digital Decade in 2024: Implementation and perspective' with annexes, SWD(2024)260: <https://digital-strategy.ec.europa.eu/en/news-redirect/833325>, Annex 4.

All the KPIs on the digitalisation of enterprises, except for the use of cloud services, attest to Poland's performance being below the EU average. Polish start-ups have a very large growth potential, but the country's start-up ecosystem has yet to deliver on its promise. With 20 unicorns, Poland's target for 2030 is in line with the goal of doubling their number but appears modest given the country's potential for innovation.

To contribute to EU sovereignty, Poland aims to: (i) boost its share in global microelectronics production value chains from minimal at present to 0.5% by 2030; (ii) deploy 370 edge nodes by 2030; and (iii) host one quantum computer by 2025.

The current [national cybersecurity strategy](#) was adopted in 2019. As the strategy runs for five years, it may have to be amended or replaced this year, while the NIS2 Directive has yet to be transposed.

Recommendations – Poland should:

- **CONNECTIVITY INFRASTRUCTURE:** (i) Proceed with the allocation of remaining 5G pioneer bands. (ii) Transpose the European Electronic Communications Code into national law. (iii) Strengthen measures on 5G deployment, including those alongside the main transport corridors. (iv) Ensure sufficient access of new players to spectrum for innovative business-to-business (B2B) and business-to-consumer (B2C) applications and encourage operators to speed up the deployment of 5G stand-alone core networks.
- **CYBERSECURITY:** continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.
- **AI/CLOUD/DATA ANALYTICS:** (i) Review the mix of measures to support the adoption of advanced digital technologies (with a particular attention to AI and data analytics). (ii) Ensure the broad uptake of the next generation of cloud infrastructure and services under development in the IPCEI-CIS by companies of all sizes, including by developing a country-specific dissemination strategy (complementing what has already been committed under IPCEI-CIS); contributing to the additional dissemination activities led by the Cloud IPCEI Exploitation Office.

Protecting and empowering EU people and society

To ensure that digital transformation is inclusive, Poland needs to improve the digital skills of the population and the share of ICT specialists in the workforce at a much faster pace than in previous years.

The share of the Polish population with at least **basic digital skills** is below the EU average; to achieve the target of 80% of the population with at least basic digital skills by 2030, the pace of growth until then would have to be more than five times higher than the average observed in recent years. For **ICT specialists** also, the 2023 value is below the EU average, but Poland does not plan to equal the EU target (of 10%) proposing instead a national target of 6%. Even so, the measures announced in the draft roadmap do not promise results that would be sufficient to achieve the expected increase by 2030.

Poland has made strides in its electronic identification scheme, with one notification submitted to the European Commission in 2023 and another in preparation. 36.5% of Poles used e-ID to access public services in Poland (EU average: 36.1%), a good result most likely related to the widespread use of the mObywatel application and e-ID means – the personal profile (*profil osobisty*) that is available in the ID card. **Poland ranks below the EU average on the availability of public services for citizens and businesses online and the use of e-government in the last 12 months**, but the average rate of growth and efforts to improve available services or offer new ones should, if sustained, enable Poland to close the gap by 2030. **Poland's score for**

online access to e-health records is much higher than for the whole EU and its actions in this area suggest the target score of 100 is within reach.

Recommendations – Poland should:

- **BASIC DIGITAL SKILLS:** Include in the roadmap measures to improve the basic skills of younger population (e.g., actions to improve digital equipment in schools, qualifications of ICT teachers, changes to programmes to increase the attractiveness of STEM disciplines)
- **ICT SPECIALISTS:** Take measures to increase the number of ICT specialists (e.g., improved visibility and accessibility of training and reskilling options; incentive schemes to attract new / retain current ICT specialists) and promote ICT studies and careers to women and girls.
- **PUBLIC SERVICES:** Ensure coordinated implementation of public service and work towards integration of public records with a view to implement the ‘once-only’ principle.
- **E-HEALTH:** (i) Make the data types of current problems and medical images available to citizens through the online access service. (ii) Ensure that all data types are made available in a timely manner.

Leveraging digital transformation for a smart greening

Polish public authorities and businesses consider the energy- and resource-efficient digital infrastructure and technologies in their daily operations and investments, particularly where EU resources are concerned.

However, these efforts seem to be driven mostly by regulatory compliance or cost reduction. There is no system to monitor digital impacts on the environment, nor any comprehensive reflection on the opportunities offered by synergies between green and digital technologies.

Recommendations – Poland should:

- Mainstream considerations for the impact on the environment, including potential synergies, in the strategical reflection on national digital policy and develop a coherent approach to twinning the digital and green transitions. First, promote improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs.
- Monitor and quantify the emission reductions of the deployed digital solutions in line with the relevant EU guidance and with the support of the methodology developed by the [European Green Digital Coalition](#), in view of future policy development, as well as of attracting relevant financing.