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State of the Digital Decade 2025: Keep building the EU's sovereignty and digital future

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European Commission

DIGITAL DECADE 2025
COUNTRY REPORTS

Slovakia

Slovakia

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Executive summary

Slovakia made some improvement in digital infrastructure deployment and take-up of broadband connectivity and 5G network services, but it still lags behind in overall rollout of digital infrastructure and in business digitalisation. Good progress was achieved in the share of ICT specialists and a promising trend emerges among the youth, with digital skills levels in line with the EU average.

Slovakia shows a substantial level of ambition in its contribution to the Digital Decade, having set 12 national targets, 83% of which aligned with the EU 2030 targets. The country is following its trajectories well with 86% of them being on track (considering 2024 trajectories defined for 7 KPIs out of 8 analysed). Slovakia addressed 27% of the 15 recommendations issued by the Commission in 2024 by making some changes through new measures.

Slovakia falls short of EU standards in most of the Digital Decade key performance indicators. Efforts are underway to bridge these gaps, but their results will require time and additional resources to fully materialise. The country is taking steps to create an environment that supports the digitalisation of SMEs and the development of digital skills, with new measures introduced in 2024. At the same time, public sector investments aim to further enhance connectivity infrastructure, with a particular focus on FTTP, and comprehensive initiatives are supporting the development of a high-performance computing ecosystem. While digital public services are below EU average levels, a comprehensive investment plan was adopted to strengthen their digitalisation. Increasing attention is being dedicated to ensuring cybersecurity.

Digital Decade KPI (1)	Slovakia				EU		Digital Decade target by 2030	
	DESI 2024 (year 2023)	DESI 2025 (year 2024)	Annual progress	National trajectory 2024 (3)	DESI 2025	Annual progress	SK	EU
Fixed Very High Capacity Network (VHCN) coverage	69.1%	73.0%	5.6%	49.0%	82.5%	4.9%	100.0%	100%
Fibre to the Premises (FTTP) coverage	64.2%	67.8%	5.6%	-	69.2%	8.4%	-	-
Overall 5G coverage	79.0%	87.9%	11.3%	80.0%	94.3%	5.9%	98.5%	100%
Edge Nodes (estimate)	5	10	100.0%	-	2257	90.5%	-	10000
SMEs with at least a basic level of digital intensity (2)	-	62.9%	2.2%	-	72.9%	2.8%	90.0%	90%
Cloud	30.2%	-	-	-	-	-	75.0%	75%
Artificial Intelligence	7.0%	10.8%	53.1%	9.0%	13.5%	67.2%	75.0%	75%
Data analytics	30.2%	-	-	-	-	-	75.0%	75%
AI or Cloud or Data analytics	45.8%	-	-	-	-	-	-	75%
Unicorns	0	0		0	286	4.4%	3	500
At least basic digital skills	51.3%	-	-	-	-	-	70.0%	80%
ICT specialists	4.2%	4.6%	9.5%	4.0%	5.0%	4.2%	6.0%	~10%
eID scheme notification		Yes						
Digital public services for citizens	72.1	72.6	0.7%	70.0	82.3	3.6%	100.0	100
Digital public services for businesses	79.2	73.4	-7.3%	84.0	86.2	0.9%	100.0	100
Access to e-Health records	66.3	72.0	8.6%	50.0	82.7	4.5%	100.0	100

(1) See the methodological note for the description of the indicators and other metrics
(2) DESI 2025 reports the version 4 of the Digital Intensity Index, that is comparable with the DII value from DESI 2023 (referring to year 2022) for the calculation of the annual progress. It is not comparable to the national trajectory that is based on version 3 of the index.
(3) National trajectory value if present in the national roadmap and if the indicator was measured in DESI2025 (year 2024)

According to the special Eurobarometer on 'the Digital Decade' 2025, 82% of Slovak citizens consider that the digitalisation of daily public and private services is making their lives easier. Concerning the action of the public authorities, 93% consider it important to counter and mitigate the issue of fake news and disinformation online, and regarding competitiveness, 88% consider it important to ensure that European companies can grow and become 'European Champions' able to compete globally.

A competitive, sovereign, and resilient EU based on technological leadership

Despite some progress in deploying fixed and mobile networks, with Slovakia's VHCN and 5G deployment rate outpacing the EU average, the country still lags behind EU average levels in overall broadband coverage and uptake. This is particularly notable in rural areas, where access to these networks remains limited. Support instruments are being prepared to fund connectivity infrastructure – notably for gigabit infrastructure deployment in underserved areas and in schools, as well as social vouchers to promote digital inclusion for pupils – but an investment gap remains. Recent and ongoing changes in the regulatory landscape are also expected to impact the deployment of digital infrastructure (use of aerial infrastructure for fibre deployment, new construction law, Gigabit Infrastructure Act). Slovakia's 5G spectrum allocation currently spans the 700 MHz and 3.6 GHz frequency bands, and all telecom operators have increased their coverage over the past year, with 5G stand-alone networks expected to become available soon.

Slovak businesses show a low level of adoption of advanced technologies, with many SMEs having low digital intensity. Efforts to promote the digitalisation of businesses are ongoing, including support for SMEs through initiatives such as European Digital Innovation Hubs, the Digitrans project, digital and innovation vouchers. However, room for improvement exists in the pace of implementation, ensuring streamlined administrative procedures and expanding the pool of beneficiaries, especially among SMEs. Targeted efforts to promote AI adoption are underway, although challenges associated with informational and managerial barriers exist. Slovakia's ecosystem of innovative start-ups is small. The government has introduced a number of measures to support the growth of scale-ups and start-ups, including the establishment of a European Institute of Innovation & Technology Digital Regional Office, but limited funding remains a barrier.

Cybersecurity is a political priority, backed by various measures, such as training, monitoring and vulnerability assessment. The country is working to improve its cybersecurity with a new strategy being adopted for the 2026-2030 period.

Protecting and empowering EU people and society

While Slovakia's overall digital skills levels are lower than the EU average, a positive trend emerges among younger generations, who have digital skills comparable to their EU counterparts. To promote digital competencies, Slovakia is implementing a comprehensive and inclusive national digital skills strategy. New measures have been introduced to ensure the appropriate pre-conditions for students and teachers to develop their digital skills, with the provision of digital equipment to students from disadvantaged backgrounds and the integration of AI into teaching. Progress, however, will take time to materialise and will require structural barriers to be addressed, including the shortage of mathematics and informatics teachers, social and financial vulnerabilities and a fragmented management of digital skills policies. A promising uptrend was observed in the share of ICT specialists

within the workforce. At the same time, action is being taken to increase the number of ICT specialists and provide appropriate education and training offers, with a specific focus on women's participation in ICT, though it remains at a relatively low scale.

Improvements are needed in the digitalisation of public services, especially in terms of availability for cross-border users. Relevant measures are being implemented, including the recently adopted roadmap for digitalising administrative procedures for 16 priority life situations. These initiatives are expected to improve the availability of digital services for citizens and businesses and reduce administrative burden. At the same time, the share of e-Government users and the uptake of eID continue to be low compared to the availability of these services, and weaknesses associated with the transparency of service processes and design remain.

Slovakia has made good progress in increasing access to electronic health records and is on track to achieve 100% accessibility by 2030. However, the country still faces challenges in fully utilising its e-Health system, due to issues such as low use of e-ID and technical difficulties faced by healthcare professionals, as well as gaps in the availability of medical images to citizens and access opportunities for legal guardians, authorised individuals, and disadvantaged groups.

Leveraging digital transformation for a smart greening

Digitalisation is being explored as a means to support Slovakia's green transition, but current efforts remain limited. The `Digital Skills for the Green Future of Slovakia' project is a flagship initiative, aiming to address the skills needs associated with the green and digital transitions, raising awareness among key stakeholders and developing reference frameworks that identify necessary green and digital skills across professions.

National Digital Decade strategic roadmap

Slovakia submitted an addendum to its national Digital Decade roadmap on 27 November 2024, containing 11 additional measures and 2 revised trajectories. While not all the new measures directly address the SDD24 recommendations, they are relevant to the reality and needs of Slovakia's digital landscape, focusing in particular on the digitalisation of businesses and development of digital skills. However, no additional public funding could be allocated to their implementation, which might negatively affect their implementation and sustainability.

The adjusted roadmap addresses a limited number of roadmap recommendations issued in 2024. All targets align with the EU level goals for 2030, except for the development of digital skills, where the country has a 70% target (instead of 80% for the EU) and ICT specialists, where the country has a goal of 6% of the workforce (instead of 10%). The revised roadmap continues to prioritise the digitalisation of businesses and development of digital skills. It is composed of 127 measures with a budget of EUR 2.26 billion, equivalent to 1.74% of GDP. It still covers all objectives of the Digital Decade, such as a human-centred digital space and bridging the digital divide, but certain aspects would require more attention, such as promoting leadership and sovereignty, and contributing to the green transformation.

Slovakia

Funding & projects for digital

Slovakia allocates 21% of its total recovery and resilience plan to digital (EUR 1.2 billion)[1]. In addition, under cohesion policy, EUR 886 million, representing 7% of the country's total cohesion policy funding, is dedicated to advancing Slovakia's digital transformation[2].

Slovakia is a member of the Local Digital Twins towards the CitiVERSE EDIC. Slovakia is directly participating in the IPCEI on Microelectronics and Communication Technologies (IPCEI-ME/CT). Slovakia is also a participating state in the EuroHPC Joint Undertaking (JU) and in the Chips JU.

Slovakia has not yet presented any project in the framework of Digital Decade's Best Practice Accelerator[3].

Digital Rights and Principles

According to a support study, Slovakia has shown rather limited activity in implementing the **European Declaration on Digital Rights and Principles**, with 27 initiatives overall but no new initiatives launched in 2024. Slovakia is most active in the area of putting people at the centre of the digital transformation. Less activity has been identified with regards to a protected, safe and secure digital environment. Measures in the area of solidarity and inclusion and freedom of choice appear to have most impact on the ground, in contrast to those addressing safety, security and empowerment and sustainability.

Recommendations

- **VHCN/FTTP**: Facilitate infrastructure deployment by lifting administrative barriers and supporting collaboration between stakeholders, especially for the deployment of fibre optic networks.
- **SMEs**: Continue building on existing measures targeted at SMEs (e.g. EDIHs, Digitrans), expanding their scope and pool of beneficiaries, while ensuring continued support in the medium-long term.
- **AI, Cloud and Data analytics**: Accelerate the implementation of planned measures, prioritising solutions that limit administrative burden and ensure transparency. In particular, continue supporting the uptake of AI across businesses and in the public administration, addressing existing informational and managerial barriers.
- **Basic digital skills**: Continue implementing existing measures to enhance the level of digital skills across all population groups, while ensuring that all educators possess adequate training, especially IT and mathematics teachers.
- **Cybersecurity**: Continue ongoing efforts to strengthen cybersecurity, while also allowing the appropriate authorities to enforce prompt and necessary actions to mitigate identified threats or weaknesses.

[1] The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation. Last data update: 16 May 2025.
[2] 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.
[3] The Best Practice Accelerator (BPA) is a platform that enables Member States to share successful measures and challenges encountered in their efforts to meet their Digital Decade targets and objectives. Best practices are made available to Member States via the BPA Repository and showcased in regular workshops, currently focused on three thematic clusters: Digital Skills, Green IT, and the Uptake of Digital Technologies.

- **Digital public services**: Increase the transparency and availability of digital public services, particularly for cross-border users, including by enhancing the user-friendliness, functionalities and uptake of the e-ID mobile app and *Slovensko v Mobile app*.
- **Unicorns**: Expand existing measures aimed at supporting the growth of scale-ups and start-ups that drive innovation and invest in emerging technologies.
- **ICT specialists**: Ensure ICT studies are sufficiently offered and promoted, in line with labour market needs, as well as provide opportunities for workers to access lifelong learning and reskilling/upskilling programmes in this area.
- **Green ICT**: Develop a coherent approach to twinning the digital and green transitions.

A competitive, sovereign and resilient EU based on technological leadership

Despite ongoing efforts, Slovakia's digitalisation and innovation landscape is relatively weak compared to the EU average. Actions are underway to boost digitalisation and improve the country's digital infrastructure. The 2030 Digital Transformation Strategy of Slovakia and the National Broadband Plan are a key part of these efforts, focused on increasing economic and societal digitalisation, developing digital infrastructure, and promoting the adoption of advanced digital technologies. In this respect, EU funding, primarily from the recovery and resilience plan (RRP) and Programme Slovakia, is essential. As measures seek to address the underlying structural weaknesses to digitalisation, however, results will require time to fully materialise. Simultaneously, challenges remain, such as budget constraints on the expansion of existing measures or introduction of new ones. In some cases, insufficient institutional support and lack of coordination on digital matters also hinder progress.

On digital infrastructure, Slovakia's performance was mixed compared to the EU average. While the country still lags behind in Fixed Very High Capacity Networks (VHCN), Fibre to the Premises (FTTP), and 5G networks coverage – especially in rural areas– it has experienced growth in the deployment of connectivity infrastructure, as well as in take-up of broadband connectivity and 5G network services, and is planning public investments to further support progress. However, an investment gap persists. Notably, building efficient and secure digital infrastructure is considered to be a priority, as confirmed by the 2025 Digital Decade Eurobarometer[4] results, which reveal that by 93% of Slovak citizens find it important. This share is above the EU average of 86% and shows an increase by 6 percentage points since 2024.

The degree of digitalisation of businesses remains below expectations. To bridge the gap, the government is supporting initiatives such as the European Digital Innovation Hubs (EDIHs), the Digitrans project, a new financial instrument offering state-backed guarantees for enterprises to invest in technological tools, and support measures for the adoption of advanced digital technologies. However, ensuring that digital advances reach, in particular, small and medium sized enterprises (SMEs) represents a challenge. The country is also implementing a comprehensive approach to the development of quantum communication networks and a high-performance computing (HPC) ecosystem, seeking to build on its existing strengths.

Overall, while efforts are in place to promote the digitalisation of the economy and public administration, stakeholders have lamented the slow implementation of measures to address existing gaps and the limited digital expertise within the Slovak administration. Moreover, they highlight the need for long-term financial support and solutions powered by more up-to-date technologies. existing Moreover, they highlight

The ICT sector's contribution to the country's gross value added was 4.47% in 2022, slightly below the EU average of 5.46%.[5] While it experienced a slight decline compared 2021 (4.62%), it has remained relatively stable since 2020 (4.61%). R&D spending in the ICT sector also underwent a slight

[4] Special Eurobarometer 566 on 'the Digital Decade' 2025: https://digital-strategy.ec.europa.eu/en/news-redirect/883227
[5] Most of the indicators mentioned in the country report are explained in the DESI 2025 Methodological Note accompanying the State of the Digital Decade report 2025.

decline, reaching 26.90% in 2022 (from 27.58% in 2021). R&D personnel in the ICT sector represented 30.68% of total R&D personnel in 2022, almost unchanged from 30.41% in 2021.

Cybersecurity is a priority, with a new Cybersecurity strategy underway for 2026-2030. The cybersecurity attack suffered by the information system of the Office of Geodesy, Cartography and Cadastre of the Slovak Republic in January 2025 has drawn increased attention to the pressing need for robust cybersecurity measures, and actions are being taken to address existing weaknesses.

Building technological leadership: digital infrastructure and technologies

Slovakia has made progress in the rollout of its connectivity infrastructure, but still lags behind the EU average, particularly in the deployment of VHCN and FTTP networks, with rural areas remaining considerably underserved.

Connectivity infrastructure

In 2024, VHCN coverage in Slovakia reached 72.97% (2030 national target 100%), after an increase of +5.6% from 69.12% in 2023, but stood below the EU average of 82.49%. While Slovakia's VHCN growth rate exceeded the EU's 4.9% increase, the country continues to lag behind EU average level by 9.52 percentage points, as in 2023. Nonetheless, the country is well-ahead of its national trajectory. A significantly lower coverage was achieved for households in sparsely populated areas, which reached 35% in 2023 and 39.62% in 2024, both significantly below the EU's 55.59% and 61.89% respectively. Although Slovakia's growth rate of 13.2% again outperformed the EU's 11.3%, the gap between rural areas coverage at EU and national level slightly increased, reaching 22.27 percentage points.

Slovakia achieved 67.76% FTTP coverage, after a growth of +5.6%, thus standing only slightly below the EU average of 69.24% in 2024. While in 2023, Slovakia's total FTTP coverage was 64.19%, slightly above the EU's 63.87%, it exhibited a lower growth rate compared to the EU's 8.4%. Similar to VHCN coverage, for sparsely populated areas, Slovakia's FTTP coverage was significantly lower than the EU average, at 34.96% in 2023 and 39.57% in 2024, compared to the EU's 52.55% and 58.78% respectively. However, Slovakia experienced a growth rate of 13.2% between 2023 and 2024, higher than the EU's 11.9%, even though the difference with respect to the rural areas coverage at EU level slightly increased to 19.21 percentage points. **Slovakia did not provide a national trajectory for 2024 but in the deployment of VHCN, it prioritises FTTP**.

In 2024, Slovakia's 5G coverage was at 87.94% (2030 national target 98.5%), after an increase of +11.3% compared to 2023, behind the EU average of 94.35%. Nonetheless, the country is on track according to its national trajectory and experienced a stronger growth rate of 11.3% (from 79.03% in 2023) compared to the EU's growth rate of 6.0% (from 89.05% in 2023). As a result, the gap between the EU and Slovakia's level of 5G coverage decreased to 6.41 percentage points compared to the previous year (10.02). For sparsely populated areas, Slovakia's 5G coverage sharply increased by 57.2% in 2024, reaching 72.51% from 46.14% in 2023. While rural 5G coverage remained below the EU's 71.10% in 2023 and 79.57% in 2024, the country's remarkable growth rate was higher than the EU's 11.9% and allowed to decrease the distance from the EU average coverage in rural areas.

Slovakia's 5G coverage in the 3.4–3.8 GHz band also increased. **Achieving a 70.57% coverage in 2024, it surpassed the EU's 67.72%**, with a substantial growth rate of 48.5%, exceeding the EU's 32.6%. For households in sparsely populated areas, Slovakia's coverage was 46.69% in 2024, significantly higher than the EU's 26.19%. On the other hand, Slovakia's assignment of harmonised spectrum for 5G pioneer bands remained 66.67% in 2025, still below the EU average of 74.63%. No increase was

registered compared to 2024, but this reflects a general trend at EU level, where the level of coverage increased only minimally from the 73.4% recorded in 2024.

On the demand side, Slovakia has been making strides in increasing its 5G SIM card adoption and high-speed broadband subscriptions, but it remains behind the EU average. For subscriptions to fixed broadband with speeds of at least 1 Gbps, Slovakia was significantly below the EU level, having reached 1.76% in 2023 and 2.74% in 2024, both lower than the EU's 18.47% and 22.25%, respectively. However, Slovakia's growth rate of 55.7% significantly exceeded the EU's 20.5%. For subscriptions with speeds of at least 100 Mbps, uptake was also lower than EU level, reaching 45.15% in 2023 and 48.84% in 2024, compared to the EU's 65.90% and 71.88%, respectively. In this case, Slovakia's growth rate of 8.2% was slightly lower than the EU's 9.1%. In turn, the share of 5G SIM cards in Slovakia was 26.54% in 2024, below the EU's 35.56%. However, it grew by an impressive 81.8% from 2023, when it stood at 14.6%. As such, it outpaced the EU's increase of 63.9%.

VHCN and FTTP

Slovakia is still working towards achieving 100% coverage of households with VHCN. In doing so, it focuses on the deployment of FTTP, which is close to the EU average, despite a slowdown in 2024 associated with an increase in the number of households, having outpaced the increase in FTTP connections in absolute value.

Investments and operations in FTTP are primarily driven by one of Slovakia's main telecom operators, which has prioritised underground fibre deployment where feasible. At this stage, further expansion of fibre networks often relies on accessing aerial poles, which are partly managed by energy distribution companies. A 2020 update to the country's construction law has enabled telecom operators to access these poles, accelerating fibre deployment. However, since telecom operators need to negotiate with energy distribution companies to secure access, differing terms and approaches can slow down fibre deployment in certain areas; often, energy distribution companies prefer telecom operators to use their own fibre optic lines rather than granting direct access to the poles.

If the growth trends experienced in the deployment of fixed broadband networks over recent years were to persist, and taking into account geographical impediments and feasibility, the Slovak National Regulatory Authority (NRA) would expect to achieve a coverage rate of approximately 98% of households by 2030. However, this might be challenging due to existing investment needs. Despite planned investments, a preliminary estimate - calculated by the Slovak authorities based on the geographical survey conducted by the NRA in 2024 – indicates an **investment gap of approximately EUR 525 million to meet the country's connectivity target by 2030**.

In parallel, the evolving regulatory landscape is poised to significantly impact the deployment of digital infrastructure. The new construction law, which took effect in April 2025, aims to streamline construction procedures, but its full impact remains uncertain. Stakeholders have expressed concerns about the potential for increased administrative burdens and fees associated with deploying digital infrastructure in municipalities, associated with new reporting obligations for network providers. Specifically, the law is expected to complicate the provisioning of VHCN customer connections, and in some cases co-laying, modernisation and approval processes for new underground lines. On the other hand, the integration of the Gigabit Infrastructure Act is expected to introduce further simplifications, facilitating the rollout of fast broadband networks.

Since the adoption of Slovakia's National Broadband Plan (NBP) in 2021, followed by a feasibility study in 2023, **the country has set up two measures to improve broadband connectivity.** Programme

Slovakia provides an important contribution to these measures, allocating EUR 112 million to broadband connectivity through the European structural and investment funds (ESIF). While telecom operators welcomed these initiatives as a positive step forward, they noted the lengthy delay and process behind the adoption of these measures.

- **Gigabit infrastructure deployment in underserved areas**: this measure aims to bring high-speed internet to uncovered areas, in line with the NBP's goal of covering every household with high-speed broadband networks.
- **Social vouchers**: The social vouchers are intended to target primary and secondary school pupils from disadvantaged economic backgrounds or who have special educational needs, covering Internet connection for a period of 24 months, thus promoting digital inclusion.

Besides the above-mentioned initiatives, in 2025, the Slovak Ministry of Education is set to implement a public procurement project with a value of up to EUR 230 million to **upgrade school infrastructure and connectivity across the country**. Financed through the European Social Fund (ESF) and the Recovery and Resilience Facility (RRF), the project aims to bring every school in Slovakia up to a basic level of digital infrastructure.

Connectivity infrastructure rollout is also supported by EU level projects. Slovakia participates in the CEF Digital project International optical connectivity between Čadca (SVK) and Zwardoň (PL). The project's objective is to diversify international backbone routes by constructing a new optical path between Slovakia and Poland, which will provide connectivity infrastructure to remote territories.

Given that copper networks in Slovakia are relatively modern, there is no official copper switch-off plan. As reported by the NRA, approximately 17% of customers still use ADSL or VDSL, with a 2.5% annual decline over the past five years.

5G

Slovakia aims to achieve 98.5% 5G coverage, a target that remains unchanged since the 2023 roadmap. This decision reflects the technical and economic challenges to achieving 100% coverage, as highlighted by Slovak authorities. However, the strong growth rate experienced by Slovakia since 2023 in 5G coverage led it to increase the intermediate coverage levels expected between 2025 and 2028. Given this promising trend, the 2030 target appears achievable.

Slovakia's 5G spectrum allocation currently spans the 700 MHz, 3.6 GHz, and 26 GHz frequency bands. The 26 GHz band remains unallocated due to a lack of interest from operators, but it is technically ready for allocation, except for a 400 MHz segment reserved for the military. Ongoing talks with the military aim to address this issue and clear the way for the band's allocation. At the same time, it should be noted that the 700 MHz band is experiencing interference from Ukraine's use of the same frequency band, affecting 5G operations in eastern Slovakia. Negotiations are currently ongoing within the Radio Spectrum Policy Group, but a solution is yet to be found.

All telecom operators have increased their coverage over the past year, working in different frequency bands. Four telecom operators are active in the market, each offering both fixed and mobile network services, out of which two offer 5G connectivity.

An auction is planned to assign the rights to use available frequencies (specifically, 800 MHz, 900 MHz, 1 500 MHz, 2 100 MHz, and 2 600 MHz) to network operators, as the current licences are set to expire between 2026 and 2028. Ahead of the auction, an assessment of the competitive, technical and economic situation in the mobile telecommunications market was conducted. This

allowed the Broadband Competence Office to identify potential measures to foster effective competition (e.g. limiting the maximum range of frequencies allocated to individual undertakings) as part of the issuance of individual permits for frequency use.

There are currently no publicly available 5G stand-alone networks in Slovakia, but such networks are expected to become available soon. Three mobile operators have been granted individual licenses for the 700 MHz band and are required to ensure the operation of the 5G stand-alone core network by the end of 2025. One operator has announced its plans to launch the 5G stand-alone core network in the second quarter of 2025, while another has made progress in this area, with two stand-alone 5G networks on university campuses and a private one currently operational.

CEF Digital is also seen as a valuable source of funding and support in 5G network deployment. One of Slovakia's biggest telecom operators is involved in the CEF Digital funded project TUKE 5G Infrastructure for Smart Communities, which will deploy private 5G network elements at the Košice university. Slovakia was also involved in the CEF Digital project Study of 5G/FRMCS implementation on the railway corridor Brno (CZ) – Bratislava (SK), which ended in May 2024. The study sought to improve 5G coverage along railway corridors, to offer better voice and data services for passengers. A workshop took place in March to discuss the findings and determine the project's continuation, in collaboration with the Czech ministry.

2024 recommendations on connectivity infrastructure: i) Develop targeted initiatives to fill the investment gap and secure public and private funding in broadband coverage and uptake to address the identified gigabit and 5G connectivity challenges, 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.

In 2024, Slovakia continued the implementation of existing measures but did not take any new measure. However, an important development was the proposal of two new measures to support the deployment of connectivity infrastructure, especially in underserved areas.

The upcoming auction for allocating available frequencies is aimed at fostering competition at the infrastructure level, which should contribute to creating conditions for increased competition on the wholesale market. In parallel, the development of 5G stand-alone networks is ongoing.

Semiconductors

Slovakia's contribution to the semiconductor ecosystem remains limited, but the country is seeking to build its production capacity to become part of the value chain.

While no new measures were introduced in the roadmap, the implementation of existing ones continues, despite some challenges. Following a 2023 call for proposals by the Research and Innovation Authority (VAIA), EUR 20 million were allocated to four projects in the microelectronics sector, part of the European Union's Important Projects of Common European Interest (IPCEI ME/CT) initiative. While two projects are currently underway, receiving funding from the RRF, the other two were unable to proceed, due to reasons such as failing to meet financing criteria or rejecting the grant agreement.

The two ongoing projects aim to develop cutting-edge technologies. One includes product development of chips and embedded systems, aimed at offering the best performance for specific memristor-based neuromorphic applications across the entire value chain and large-scale

industrialisation. The other seeks to develop a new generation of wireless receiver technology integrated on a single chip, meant to save costs and reduce electricity consumption. Although each project received EUR 5 million in financing, they face a combined financing gap of over EUR 70 million. Discussions are ongoing to secure future funding, with one potential solution being integration into the Strategic Technologies for Europe Platform (STEP).

Edge nodes

The Edge Node Observatory estimates that Slovakia had 10 edge nodes by 2024, double the number of edge nodes in 2023 (estimated number revised from 2023), and was still one of the countries with the fewest edge nodes in the EU. However, no specific measures have been introduced so far to promote the development of edge nodes, and Slovakia is currently unable to define its contribution to the EU's target in this area. The country is looking to identify, within the public administration, the department that can lead concerted efforts for the deployment of edge nodes.

Quantum technologies

Slovakia is working on the construction of a quantum communication network, with funds from the Digital Europe programme (under the EuroQCI initiative) and the RRP. The network is meant to connect 12 Slovak academic institutions, from Bratislava to Košice. Slovakia is taking a strategic approach to quantum technology development, building on its strengths through a range of measures. These initiatives focus on establishing the necessary infrastructure (including cross-border communication lines, a satellite quantum communication node, and a virtual institute for quantum information research) and on educational activities and trainings. No new measures were introduced in the adjusted Digital Decade roadmap.

2024 recommendation on semiconductors, edge nodes and quantum: Foster increased involvement at the European level to promote the adoption of semiconductors, edge nodes, and quantum technologies.
In 2024, Slovakia continued the implementation of existing measures but did not take any new measure. While emphasis has been placed on the field of quantum networks, in which a concerted and comprehensive approach is ongoing, room for improvement exists in the fields of semiconductors and edge nodes, particularly in coordinating actions at institutional level.

In its Digital Transformation Action Plan, **Slovakia has put in place a coordinated approach to promote the development of a high-performance computing (HPC) ecosystem**. This involves supporting the development and sustainability of the national HPC infrastructure, education and competence development in HPC, and the adoption of HPC within the public administration and among businesses. Notably, Slovakia will develop a supercomputer for the National Supercomputing Centre as part of its RRP. The supercomputer will have 2 nodes, one in the Slovak Academy of Sciences and one in the Technological University in Kosice, with procurements procedures having been signed.

In relation to this, **a new measure was introduced in the roadmap, aimed at establishing and operating a robust supercomputer infrastructure ecosystem**. This ecosystem will serve as a hub for HPC technology, encompassing all aspects of the technology life cycle, from development and promotion to education and capacity building. The National Ecosystem for Supercomputing will join the European Joint Undertaking for High Performance Computing (Euro HPC) initiative.

Supporting EU-wide digital ecosystems and scaling up innovative enterprises

Slovakia's innovation and digitalisation performance is below that of other EU Member States. The Slovak economy is affected by slow technology adoption among businesses, particularly SMEs, low public spending on research and innovation, and a weak digital infrastructure. This is compounded by a fragmented governance structure and a poor business environment, hindering the country's global competitiveness. Nonetheless, the country is making considerable efforts in implementing a set of policy measures to promote the digitalisation of businesses.

SMEs with at least basic digital intensity

In 2024, 62.90% of Slovak SMEs had at least a basic level of digital intensity (2030 national target: 90%), after a year-on-year growth rate of +2.2% between 2022 and 2024. As such, Slovakia still fell below the EU average of 72.91%. Among the most digitally advanced SMEs, only 26.50% achieved a high or very high digital intensity. This is below the EU average of 32.66% and shows a generally low level of digitalisation. Looking at the uptake of specific technologies or services, a smaller share of Slovak SMEs provided remote working options[6] compared to the EU average, and they were also less likely to hire or train ICT specialists[7]. Moreover, a relatively low share of SMEs in Slovakia had documents on measures, practices or procedures to ensure ICT security[8]. Overall, despite some progress in the digitalisation of Slovak SMEs, efforts need to be intensified to bridge the gap with the EU average.

Slovakia's 2030 target corresponds to the EU target of at least 90% of SMEs having at least basic digital intensity, as per the initial roadmap submitted in 2023. Considering the ambitious target, efforts to support the digitalisation of SMEs should be stepped up in this area. While SMEs play a central role in the Slovak economy, constituting 96% of enterprises with 10 or more employees in 2022, the Slovak government has only few, small-scale measures in place targeting SMEs and their digitalisation process.

Despite existing limitations, Slovakia is working on creating an environment that supports the digitalisation of SMEs, focusing on two areas: improving access to digital services and increasing investment. To enhance access to digital services, awareness-raising, training and support measures are being implemented, and a platform for exchange is being put in place. In this context, two new measures were included in the adjusted roadmap, and one was revised:

- **Support for the operation of EDIHs was extended up to 2030**, with the allocation of EUR 7 million from 2027. This marks a positive development, as EDIHs have proven to play an important role in providing SMEs with a space for testing and experimentation, access to technology, and help in obtaining additional financial support or improving employees' digital skills. Slovakia has five EDIHs, which cover a range of areas, including Artificial Ontelligence (AI), digitalisation of businesses, green digitalisation, and innovative healthcare. Notably, the Slovak Centre for Digital Innovations EDIH has received the European Commission's seal of excellence. The Slovak EDIHs' services are in high demand, which shows that businesses

[6] In 2024, 71.26% of Slovak SMEs provided remote access to the enterprise's e-mail system, documents or applications to employees, against the EU average of 83.01%; 37.07% of Slovak SMEs conducted remote online meetings, against the EU average of 51.65%.
[7] In 2024, 16.59% of Slovak SMEs provided training to their personnel to develop their ICT skills, against the EU average of 20.76%; 17.25% of Slovak SMEs employed ICT/IT specialists, against the EU average of 20.05%.
[8] In 2024, 22.89% of Slovak SMEs had document(s) on measures, practices or procedures on ICT security, against the EU average of 34.11%; 69.40% of Slovak SMEs used at least 3 ICT security measures, against the EU average of 75.83%.

recognise their added value and need for support. The new measure, which is financed by the RRF and Digital Europe Programme (DEP), represents an important commitment to supporting their operation in the medium term.

- **Digitrans Slovakia** is a promising new project, piloted with the support of the World Bank and funds from Programme Slovakia. It consists of a consultancy and training programme, combining technical assistance through a targeted capacity-building programme and financial grants to support the implementation of the programme, with a reimbursement of up to EUR 2 000. The measure targets the least-digitalised micro and small businesses and thus seeks to complement the services provided by the EDIHs. The pilot was implemented in Slovakia, Poland and Bulgaria, and has received highly positive feedback by participants. Under the plan, 500 businesses are to be supported per year between 2025 and 2027. Although the current beneficiary pool is relatively small, the Slovak government is optimistic about the project's potential and is open to expanding it, contingent on continued success and resource availability.
- The **establishment of a National Centre for Digital Economy and Society**, planned in the roadmap submitted in 2023, is **no longer planned**. The creation of a new body was deemed unnecessary, given the already rich existing institutional environment. Instead, the Ministry of Investments, Regional development and Informatisation (MIRRI) will directly undertake the activities originally planned for the new body, granting institutional support and coordination for various digital initiatives and organisations and the implementation of the relevant digitalisation strategies in Slovakia. Relying on existing structures will allow for the provision of faster and streamlined support.

To complement efforts to digitalise SMEs, the Slovak government is working on easing access to investment. Although financial barriers initially delayed the rollout of planned measures, at the end of 2024, the Ministry of Economy was able to launch a new financial instrument offering state-backed guarantees to commercial banks; in turn, these banks can provide loans to SMEs, which can be associated with grant support, aimed at co-financing investments in technological tools, digitalisation and innovation projects. This initiative, currently available through selected commercial banks using RRF resources, will expand to additional financial institutions through funds from Programme Slovakia.

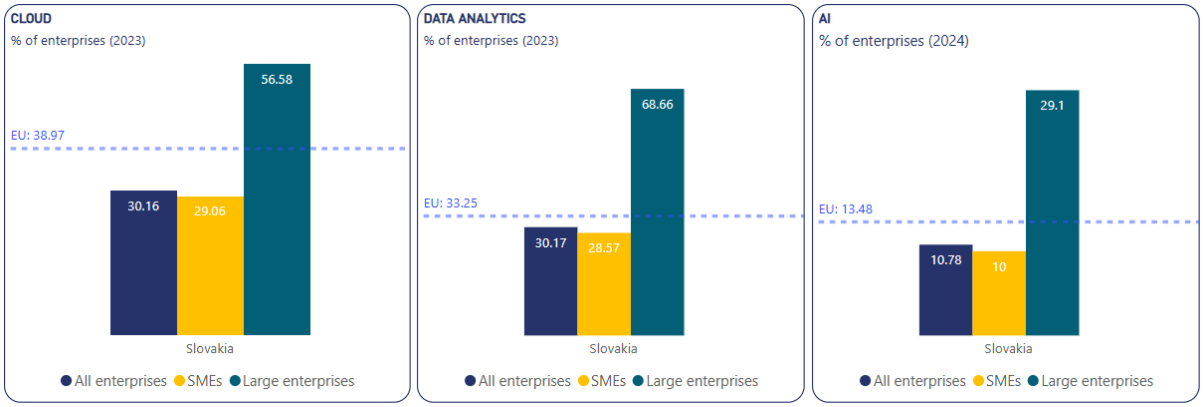
On the other hand, **the planned measure aimed at the dissemination of education on the use of digital technologies was removed from the roadmap**. This measure represented a positive initiative, aimed at raising awareness of the impact and potential benefits of digitalisation for SMEs. Its removal is unfortunate, considering that only a few measures specifically targeting SMEs are included in the roadmap.

2024 recommendation on digitalisation of SMEs: Accelerate the diffusion of innovative technologies and solutions across the economy to improve digital adoption and competitiveness.
Slovakia made some efforts to address the recommendation through new policy actions in 2024. Slovakia's commitment to supporting the **continued operation of the EDIHs** until 2030 and the **Digitrans project** represent a positive step in ensuring the availability of digital services to SMEs in the longer term. Notably, the complementary nature of these two measures, with Digitrans targeting the least digitally intense SMEs, will contribute to addressing the disparities in digitalisation levels across the SME sector. Moreover, the newly introduced **Digital Policy Forum** and Slovakia's participation in the **European Digital Infrastructure Consortium** - **Alliance for Language Technology (ALT-EDIC)** (see next section) are also expected to contribute to catalysing digital

transformation among businesses, including SMEs, and to facilitate a collaborative and dynamic ecosystem.

However, it is worth noting that no additional expenditure from the public budget is planned for the new measures and EU funds appear to be insufficient to meet the demand. Hence, reliance on limited domestic budget allocations might constrain the government's ability to adapt to changing circumstances or scale up successful new initiatives, potentially hindering their long-term impact.

Take up of cloud/AI/data analytics



According to the most recent data, in 2024, 10.78% of Slovak firms were using AI (2030 national target: 75%), which represents an increase of +53.13% compared to the share of firms using AI in 2023. However, AI uptake still stood below the EU average of 13.48%, which saw a relatively stronger increase of 67.2% between 2023 and 2024. Nonetheless, **the country is on track according to its national trajectory**. More specifically, a significant difference exists between the uptake among SMEs, which was 10%, and that of large enterprises, of which 29.1% were using AI. This corresponds to a gap of 19.1 percentage points between SMEs and large enterprises, which is lower than the corresponding EU level gap of 28.53.

In 2023, 30.16% of Slovak firms were using cloud computing services (2030 national target: 75%), a share which remained essentially unchanged compared to 2021, and below the EU average of 38.97%. More specifically, while SMEs had an uptake of 29.06%, 56.58% of large enterprises were using cloud computing services. This amounts to a difference of 27.52 percentage points in uptake between SMEs and large enterprises in Slovakia, which is lower than the EU level gap of 31.68 percentage points.

30.17% of enterprises in Slovakia were using data analytics in 2023 (2030 national target: 75%), thus falling behind the EU average of 33.25%. Notably, the uptake was lower among SMEs - 28.57% - compared to 68.66% among large enterprises. This indicates a gap of 40.09 percentage points between SMEs and large enterprises, which is in line with the EU level gap.

When looking at all three technologies together, in 2023, 45.76% of enterprises in Slovakia used either AI, cloud, or data analytics, considerably below the EU average of 54.7%. Large enterprises had a significantly higher uptake of 82.78%, while use among SMEs reached 44.22%. This indicates a difference of 38.56 percentage points in uptake between SMEs and large enterprises in Slovakia, which is higher than the EU level gap of 32.97. In conclusion, Slovakia's adoption of cloud computing, data analytics, and AI technologies fell short of the EU average, with the country exhibiting lower uptake in all areas. The gap between SMEs and large enterprises was substantial, reflecting broader EU trends.

Various measures on the digitalisation of businesses are included in Slovakia's roadmap. These are mainly of a horizontal nature, focusing on multiple technologies at once. As part of the measures' implementation over the past two years, for instance, Slovakia has disbursed digital and innovation vouchers. While these were met with high demand by beneficiaries, heavy administrative procedures and requirements presented some challenges. Support is also being provided for research and development (R&D) projects and receiving a positive response. However, stakeholders underlined that execution has been slow in this area, with more concrete advancements and additional resources needed.

With the goal of creating a more favourable business environment that promotes digitalisation and innovation, two new measures were introduced in Slovakia's roadmap:

- **The Digital Policy Forum** will serve as a regular platform for cross-sectoral dialogue. Organised by MIRRI, the Forum will bring together industry, academia, civil society, and consumers to discuss digital policies and strategies, fostering collaboration and knowledge-sharing between the public and private sectors. By facilitating a coordinated approach to digitalisation, the Forum aims to promote the effective adoption of digital technologies among businesses.
- **Slovakia actively participates in the ALT-EDIC as an observer**. The ALT-EDIC is expected to enable Slovak enterprises to draw inspiration for alternative uses of data solutions in the field of language models, thereby expanding the scope of big data analytics.

- **Cloud**

Slovakia's 2030 target for the uptake of cloud computing services among enterprises remains set at 75%, the same as the EU level target, as per the initial roadmap submitted in 2023. Among the three technologies considered (AI, cloud and data analytics), cloud computing services are the least widespread. In its roadmap, Slovakia prioritises horizontal measures, supporting the adoption of different technologies, depending on businesses' specific needs. The only measure directly targeted at cloud is the cloud popularisation campaign planned for 2027 and already included in the roadmap in 2023. Considering these factors, the 2030 target appears difficult to achieve.

- **Data Analytics**

Slovakia's 2030 target for the uptake of data analytics remains set at 75%, the same as the EU level target. Slovak businesses perform relatively better in the field of data analytics compared to the other two technologies considered (AI and cloud), but there is still room for improvement to catch up with EU peers. Similarly to cloud computing services, the only measure directly targeted at the uptake of data analytics is a popularisation campaign, planned from 2027. However, given the challenges ahead, achieving the 2030 target may prove difficult without additional support.

- **Artificial Intelligence**

Slovakia remains committed to achieving 75% AI adoption by businesses by 2030, in line with the EU target. Progress to date is encouraging, aligning with the country's projected trajectory. As the rate of adoption increases, however, the strong growth experienced between 2023 and 2024 might slow down. Slovakia's roadmap focuses on encouraging the uptake of AI by businesses, with several planned activities, complemented by measures to promote education and the acquisition of skills in the AI field. Relevant developments in 2024 included: the establishment of an AI information point; activities to enhance AI skills among non-ICT specialists; preparation of an AI popularisation campaign; and participation in AI initiatives at EU level.

Nonetheless, the 2030 target is highly ambitious and will require significant efforts to be achieved. No new measures were introduced in the roadmap through the adjustment, but the Slovak government acknowledged the potential to introduce new initiatives related to AI in the future, reflecting its ongoing commitment to harnessing AI's transformative potential. However, as stressed by Slovak authorities, businesses face informational barriers due to a lack of understanding of AI's full potential and managerial barriers linked to established practices and inadequate digital transformation skills. Additionally, generally low levels of digitalisation among businesses hinder the adoption of more advanced technologies, such as AI.

2024 recommendations on AI, Cloud and Data analytics: (i) Support the development, roll out and take up, including support for capital investment in cloud computing, artificial intelligence, data analytics, and other cutting-edge technologies.
Slovakia made some efforts to address the first recommendation through new policy actions in 2024. While these focus on the digitalisation of the broader business environment rather than on the development, roll out and take up of specific technologies, they can make a positive contribution towards addressing the recommendation. The Digital Policy Forum and participation in the ALT-EDIC aim to drive innovation and digitalisation, by fostering collaboration and knowledge-sharing between the public and private sectors. In addition, the planned continuation of the EDIHs and the Digitrans project are aimed at supporting the adoption and effective use of digital technologies, especially among SMEs.

Unicorns, scale-ups and start-ups

At the beginning of 2024, Slovakia still had no unicorns (2030 national target: 3). At EU level, there were 286 unicorns in 2024. As of December 2024, Slovakia had two potential unicorns, though still facing a long way ahead in reaching the scale and valuation required to be considered unicorns. Considering these factors, reaching the 2030 target will represent a challenge for the country.

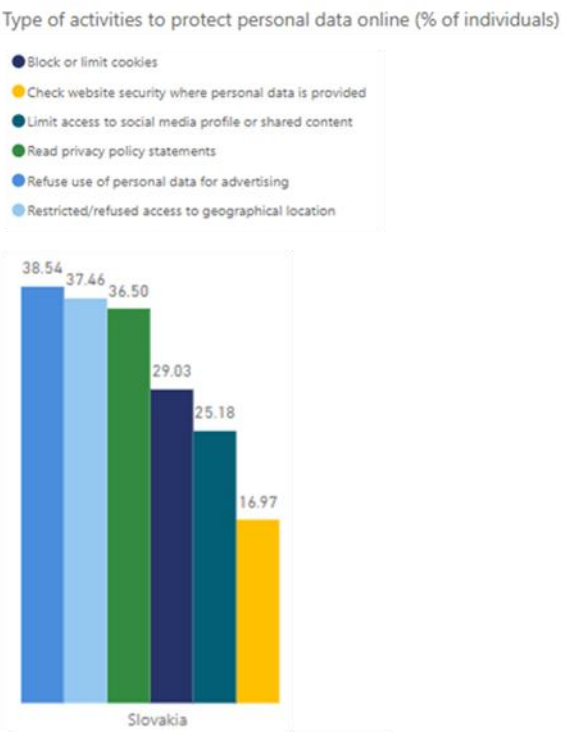
Slovakia's ecosystem of innovative start-ups is small. The country's venture capital and private equity markets are underdeveloped, with investment levels below the EU average. Support for innovative start-ups is limited, but some actions have been taken for the development of seed venture capital funds, primarily through the coordination of the Slovak Investment Holding. One notable collaboration involves the Venture to Future Fund, which provides venture capital, primarily at the scale-up level. The government also offers counselling and assistance to companies to participate in the European Innovation Council (EIC) Accelerator programme. Compared to other Member States, only a limited number of Slovak businesses have been involved in the EIC Accelerator, highlighting a need for additional support to encourage entrepreneurship and innovation.

To further support the growth of scale-ups and start-ups, a new measure aimed at establishing a European Institute of Innovation and Technology (EIT) Digital Regional Office was introduced in the roadmap. The goal for the EIT Regional Office is to create a supportive ecosystem for entrepreneurs and innovative businesses to network with other actors and source funding, connecting them with the broader European innovation network.

2024 recommendation on unicorns: Expand existing measures aimed at supporting the growth of scale-ups and start-ups that drive innovation and invest in emerging technologies.
Slovakia made some efforts to address the recommendation through new policy actions in 2024, with the commitment to establish an EIT Digital Regional Office. However, the limited availability of

funding, at both national and EU level, continues to represent a barrier to the growth of start-ups and scale-ups.

Strengthening Cybersecurity & Resilience



In Slovakia, approximately 2 out of 3 of individuals have at least basic digital safety skills, with 63.91% of individuals having taken at least one action in 2023 to protect their personal data online, only slightly below the EU average of 69.55%. About 1 out of 3 people (33.99%) took three or more such actions (and therefore could be considered as having above basic digital safety skills). The most common action taken was to refuse the use of personal data for advertising purposes (38.54%). Conversely, checking the security of websites where personal data was provided was the least frequently taken safety measure (16.97%).

Slovak enterprises fare well in terms of ICT security incidents and employee awareness. The number of enterprises that experienced unavailability of ICT services due to external attacks (e.g. ransomware attacks, Denial of Service attacks) slightly increased to 2.02% in 2024, from 1.78% in 2022, but remained below the 2024 EU average (3.43%). A fairly high share of enterprises (87.13%) had deployed some ICT security measures in 2022 (though slightly below the EU average of 92.76%) and had made their employees aware of their obligations in ICT security related issues (61.44%, above the EU average of 59.97%).

At the end of 2024, **Slovakia was leading in the roll out of the secure Internet Protocol version 6 (IPv6) for servers but had fallen behind in the deployment of IPv6 for users and in the adoption of Domain Name System Security Extensions (DNSSEC).** The degree of deployment of IPv6, which ensures the scalability, stability, and security of the internet, reveals a mixed picture. On the user side, only 8% of end-user hosts could connect to the internet using IPv6, significantly lower than the EU average of 36%. On the server side, however, 51% of internet services could operate over IPv6, exceeding the EU average of 17%. This discrepancy makes Slovakia a laggard in end-user IPv6 adoption but a leader in server-side IPv6 roll out at the EU level. In term of Domain Name System (DNS), a high level of adoption of DNSSEC is important to protect the integrity of the DNS internet infrastructure, ensuring the interoperability and security of the global cyberspace. Here Slovakia reached a 24% DNSSEC validation rate (i.e. verification of the authenticity of responses sent by name servers to clients, using a digital signature technology), significantly below the EU average of 47%.

Cybersecurity is currently a priority topic on Slovakia's political agenda, and an increasing number of cybersecurity incidents are being detected. This is likely due to a combination of increasingly frequent attacks (90% of which are phishing attacks) and higher reporting rates, motivated by increased awareness. In January 2025, the information system of the Office of Geodesy, Cartography and Cadastre of the Slovak Republic was hit by the largest cybersecurity attack in the history of the

country. The incident raised concerns about the current security level of digital public services and generated increased attention to cybersecurity matters.

This is confirmed by the 2025 Eurobarometer results, which reveal that for 90% of Slovak citizens, improved cybersecurity, better protection of online data and safety of digital technologies would significantly facilitate the daily use of digital technologies. This result is considerably higher than the EU average (81%) and reveals an increase of 5 percentage points compared to 2024.

A range of cybersecurity measures are being implemented as part of the current Cybersecurity Strategy (2021-2025), including incident response and handling; security monitoring; and vulnerability assessments across the public sector; moreover, cybersecurity training is being offered to businesses, public sector staff and schools through the dedicated National Competence Centre. However, **MIRRI's limited authority to enforce remediation measures when threats or weaknesses are detected hinders its ability to drive meaningful change and increase cybersecurity.** Only recommendations can be issued by MIRRI, and entities sometimes fail to implement them.

A new cybersecurity strategy for 2026-2030 will be adopted, building on the current strategy by incorporating new priorities and strengthening critical areas. Notably, the Strategy will align with the NIS2 Directive, as implemented through the Cybersecurity Act entered into force on January 1, 2025. Key actions will include a review of existing legislation to ensure compliance with cybersecurity standards and the expansion of the capabilities of the Government Security Operations Centre with the provision of services to additional organisations. The Achilles Project will conduct monthly vulnerability assessments for the public sector. Additionally, MIRRI will offer a Threat Intelligence Service to share knowledge and insights on vulnerabilities with various ministries. Specific emphasis will be placed on implementing proactive measures, such as strengthening penetration testing services, which, due to limited available resources, will be initially targeted at the healthcare and critical infrastructure sectors. Training in cybersecurity skills will also continue to be a priority, particularly for technical staff and managers, through dedicated training modules. Various measures will be financed by the RRF to boost cybersecurity within the public administration, by standardising technical and procedural cybersecurity solutions, improving cybersecurity training and skills for public administration staff, as well as developing an early response system.

A new measure was introduced in the roadmap to highlight the operation of the **Cyber Security Competence and Certification Centre** under Regulation (EU) 2021/887. The Centre carries out national coordination, education, conformity assessment and expert activities in cybersecurity.

Protecting and empowering EU people and society

Empowering people and bringing the digital transformation closer to their needs

Slovakia is implementing a comprehensive set of measures, under the umbrella of the Digital Skills Strategy, to improve digital skills learning in an inclusive manner. The country has identified the most digitally vulnerable groups, which include older adults (55+), financially disadvantaged groups, and Roma communities, and is taking targeted actions to improve access to digital technologies among these groups. The importance of women's participation in the ICT sector is also recognised, with targeted initiatives both in the educational and professional spheres. Overall, measures to improve digital skills and increase the share of ICT specialists are being gradually implemented, though results will likely require several years to materialise.

At the same time, according to 2025 Eurobarometer results, human support is considered highly important in today's digital age, with 89% of respondents agreeing that assistance in accessing and using digital technologies would make their daily use easier (considerably above the EU average of 77%). Furthermore, 92% believe that public authorities should prioritise ensuring people receive adequate human support to navigate the transformation brought about by digital technologies and services.

Equipping people with digital skills

Basic Digital Skills

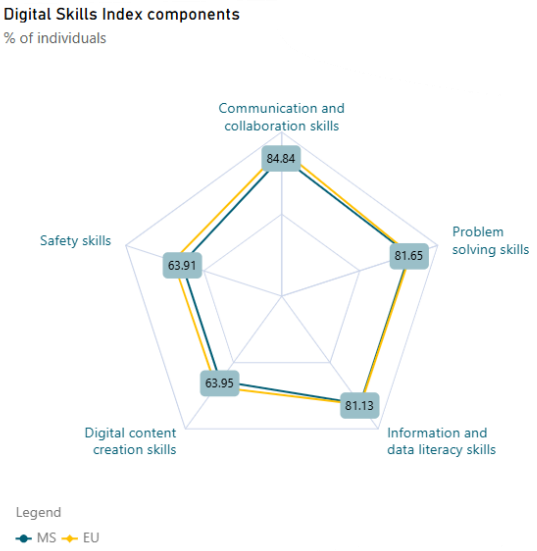
In 2023, 51.31% of Slovakia's population (ages 16-74) had at least basic digital skills (2030 national target: 70%), after a decline of -7.01% from 2021 levels (55.18%). Thus, the share of individuals with at least basic digital skills in 2023 was below the EU average of 55.56%. However, when the results are broken by age, education level, and living area, a more nuanced picture emerges. Younger people's results in Slovakia align with the EU average, but disparities persist for the older generations, those with lower education levels, and rural residents, who have weaker digital skills.

A clear divide appears across age groups. Digital skills among the lower age groups of the Slovak population (ages 16 to 24, 25 to 34, and 35 to 44) are in line with the EU average. Young people (ages 16 to 24) are the most digitally skilled in Slovakia, with a rate of 70.58% having at least basic digital skills, slightly above the EU average of 69.98% for the same group. Looking at older population groups, however, there is a gap, which becomes progressively wider with age, against the corresponding EU levels. Among working age groups, 51.91% of 45 to 54-year-olds have at least basic digital skills (EU average: 57.75%), while 38.23% of 55 to 64-year-olds have at least basic digital skills (EU average: 44.31%). The 65 to 74-year-olds have the lowest level of digital skills, at 18.77%, falling below the EU average of 28.19%.

Individuals with lower levels of formal education and those living in rural areas also tend to have a lower level of digital skills. Among those with a high level of formal education, 77.31% have at least basic digital skills, which is only slightly less than the EU average of 79.83%. For individuals with low formal education, the percentage with at least basic digital skills drops to 32.28%, only slightly below

the EU level (33.61%). This is 19.03 percentage points below the national average, which is less than the EU average gap of 21.95 percentage points. Rural residents in Slovakia show lower levels of digital skills, at 44.03%, which is below the EU average for rural areas (47.50%). The gap between rural areas and the national average is 7.28 percentage points, narrower than the EU average gap of 8.06 percentage points.

Looking at the specific **digital skills making up the Digital Skills Index**, **the Slovak respondents scored best in communication and collaboration**, with a score of 84.84%, slightly under the EU average of 89.33%. On the other hand, safety skills were a relatively weaker point, with Slovakia scoring 63.91%, below the EU average of 69.55%. Room for improvement also exists in digital content creation, at 63.95%, against the EU average of 68.28%. On problem solving skills, Slovakia reaches 81.65%, close to the EU average (82.53%).



The IT Fitness Test is a free online assessment of tool for digital skills, which has been available in Slovakia since 2010 and is targeted at elementary school and university students and teachers. The test allows takers to gain an understanding of their digital skills and weaknesses, thus providing a basis for improvement. The IT Fitness Test 2024 measures digital skills in 5 areas, including Internet, Security, Complex Tasks, Office Tools and Collaborative Tools and Social Networks.[9] In the 2024 testing round, students aged 7-16 averaged a success rate of 52.10%, indicating an average level of basic IT knowledge and skills. Respondents aged 15+ achieved a lower success rate of 45.38%. Although these findings are not representative of the entire Slovak student population, they suggest that skill levels fall below expectations.

Slovakia has a target of 70% of its population achieving at least basic digital skills by 2030, below the EU target of 80%. This target has remained unchanged since the 2023 roadmap submission. Improving the population's digital skills is a gradual and ongoing process, which will require systematic barriers to be addressed. These barriers include: declining mathematical literacy among students; a shortage of mathematics and IT teachers; social and financial vulnerabilities; and fragmentation in the management of digital skills policies between different public authorities. Considering these factors, it is unlikely that the target will be fully achieved by 2030.

Slovakia is committed to boosting digital skills nationwide, even though it may take some time to see tangible results. Its 2023 National Digital Skills Strategy focuses on improving access to digital devices, education, and lifelong learning, in particular for digitally vulnerable groups. Recent measures include, for instance, the disbursement of a EUR 350 voucher to 130 000 first-grade secondary school students from disadvantaged backgrounds for purchasing digital devices (Digital Allowance for Pupils pilot project). Teacher support measures include the deployment of Digital Coordinators in schools to help improve the digital skills of staff; the provision of Microsoft 365 licences; and the translation of the DigComp and DigComEdu, which are now being incorporated into teacher preparation

[9] While the Test partially reflects the DigComp framework, it does not fully reflect the components of the Digital Skills Index. Therefore, no direct comparisons between the two can be performed.

programmes. More broadly, the curriculum reform launched in 2023 for primary and lower secondary education – which is gradually being rolled out – aims to equip students with essential 21st century skills, such as critical thinking and digital literacy. The goals of the reform are to integrate the learning of digital skills across subjects and to reintroduce an additional hour for teaching ICT each week.

Although these are not included in the roadmap, **various initiatives targeting jobseekers** have also been launched. The project Employment Counselling offers digital skills assessments and financial support for further digital skills education, while the national project Activating Young NEETs for the Digital Age aims to develop testing tools for assessing digital skills and identifying young people's predispositions for individual career paths. The Digital Counsellor project supports workers in adapting to market changes brought about by the digital transformation, AI, and automation. Through diagnostic testing and coaching, the project helps jobseekers transition to new, sustainable jobs.

The adjusted roadmap introduced two new measures aimed at creating the appropriate conditions for students and teachers to develop their digital skills.

- **Provision of a financial contribution to vulnerable final-year primary and first-year secondary school students to acquire digital devices** (laptop and keyboard). This measure builds on the previously implemented 'Digital Pupil Allowance', aiming to ensure that all students have access to digital equipment.
- **Integration of an AI-powered assistant into the education system**. The goal of this measure is to automate administrative tasks for teachers, freeing up more time for interactions with students. Simultaneously, the tool is expected to increase teachers' familiarity with AI tools. This initiative seeks to promote the development of digital skills within the education system, while helping to address the pressing issue of teacher shortages faced by Slovakia.

On the other hand, **lack of funding led to the removal of a measure that aimed to provide Industry 4.0 training to all population groups, including older people and pupils**. This measure would have offered a range of digital skills training, including basic ICT and coding, and was a valuable opportunity for a diverse range of beneficiaries to acquire the skills they need to succeed in the digital economy.

2024 recommendation on basic digital skills: (i) Expedite the implementation of new curricula in primary and secondary schools, incorporating robust programmes focused on informatics and digital skills. (ii) Implement a comprehensive upskilling program for schoolteachers to ensure that all educators possess adequate digital competencies.

Slovakia made some efforts to address the recommendations through new policy actions in 2024, although these do so only indirectly. The provision of digital equipment to students and the integration of AI tools into education play a supporting role in establishing foundational conditions for widespread digital skills development, which is crucial for the effective implementation of the recommendations, but neither directly targets the recommendations. At the same time, while these new measures represent a positive step forward, their long-term viability might be compromised by the lack of public funding allocated to them.

In addition to the new initiatives, the ongoing curriculum reform and existing measures targeted at students, teachers, jobseekers and vulnerable population groups are relevant steps towards implementing the recommendations. The provision of social vouchers to pay for high-speed internet connection and digitalisation of school infrastructure (mentioned above) will also contribute to the development of digital skills, especially among young individuals.

Slovakia acknowledges the existence of a digital division in Slovak society and has implemented initiatives to promote inclusivity in the development of digital skills. To address the digital inequalities faced by older adults (55+) and disadvantaged groups, targeted actions have been taken, including training and guidance, the provision of digital equipment, and support in the use of digital services. For instance, a training programme aimed at equipping older adults with the skills to effectively use a computer or smartphone reached 11 300 participants by the end of 2024, with plans to reach a further 70 600 people in 2025. In addition to training, tablets have been distributed to the older population, and face-to-face courses have been held on topics such as basic computer skills, online communication, and information security. Despite these initiatives, challenges persist, particularly in overcoming the lack of confidence and mistrust among older adults towards digital technologies.

ICT specialists

In 2024, ICT specialists accounted for 4.6% of total employment (2030 national target 6%), a +9.5% increase from 2023 when their share stood at 4.2%. Slovakia still trails slightly behind the EU average of 5% in 2024, which increased by 4.2% from 2023 (when ICT specialists represented 4.8% of total employment in the EU). **Nonetheless, the country is on track according to its trajectory**. The share of female ICT specialists continues to be low, having slightly decreased to 17.2% in 2024, compared to 17.4% in 2023. As such, it falls below the EU average of 19.5%.

Similar to ICT specialists, a positive growth trend can be observed in the share of enterprises providing ICT training, which constituted 18.5% of all enterprises in 2024, marking an annual growth rate of 9.5% compared to 15.42% in 2022. Despite this, the share of enterprises providing ICT training was still lower than the EU average, which was 22.29% in 2024. Nonetheless, Slovakia demonstrated a much stronger growth rate compared to the slight decline of 0.2% annually experienced at EU level.

In terms of labour market demand for specific ICT profiles, Eurostat's experimental web scraping statistics reveal that in Slovakia, software and applications developers and analysts were the most in-demand ICT specialists in 2024, sought in 37.3% of online job advertisements. This is followed by information and communications technology operations and user support technicians, who appear in 23% of such ads. These profiles align with EU level trends, where software and applications developers and analysts are sought in 58% of ads. However, Slovakia shows a higher demand for support technicians compared to the EU average, where they are mentioned in just 10.4% of job listings (though still being the second most frequently searched profile). A relatively high share of other ICT specialists (i.e. not included in the categories listed by Eurostat) are also sought-after (20.7%), considerably higher than at EU level (9.3%).

Slovakia's target of 6% of its population being ICT specialists by 2030 remains unchanged from the roadmap submitted in 2023, and is below the EU target for 2030 (10% of the total employment in the EU). To better reflect the current capacity of the Slovak education system, the ICT specialists' trajectory was adjusted, with lower numbers of ICT experts expected between 2026 and 2028 compared to the original projections. Considering the level reached in 2024 and current growth rate, the national 2030 target appears achievable.

Actions to increase the number of ICT specialists are being implemented. The government is seeking to align the educational offer with the skills needs of the labour market. The Ministry of Education has been focusing on identifying in-demand professions, such as ICT specialists, and providing support to universities that offer relevant programmes. The Centres of Excellence project identifies secondary schools that excel in relevant areas, such as IT, and provides them with a seal of excellence and financial

support. Moreover, in 2025, the Gymnasium project will launch, which will focus on training students in IT (with a goal of 200 per year). The national project Skills for the Labour Market also supports the employability and adaptability of the service recipients of the Offices of Labour, Social Affairs and Family through education allowances that can be used to develop ICT skills.

Several measures are planned to promote women's participation in the ICT sector, both at the education and job market levels. To this end, a new measure was also introduced in Slovakia's roadmap as part of its adjustment. Aiming to strengthen women's digital skills, the measure encompasses actions to create a supportive and inclusive information environment, investment in training and mentoring, and provision of organisational and resource support to relevant third-party initiatives.

2024 recommendation on ICT specialists: Foster the development of more flexible and diverse certified ICT studies at various levels and modalities within higher education.
In 2024, Slovakia continued the implementation of existing measures and introduced a new measure, which, however, does not directly address the recommendation. Despite this, the Slovak government's efforts to identify and support high-demand professions, including ICT professionals, are promising and demonstrate a commitment to addressing the skills gap. However, they currently remain at a relatively low scale.

Key digital public services and solutions – trusted, user-friendly, and accessible to all

In 2024, Slovakia's total digital public services score for citizens reached 72.58 (2030 national target: 100), after an increase of 0.7% from 72.06 in 2023. As such, while Slovakia is below the EU average (82.32), it is on track according to its national trajectory. The average EU score rose faster, by 3.6%, from its 2023 level (79.4%). The limited availability of digital public services to cross-border users is the main weakness behind Slovakia's total score. For cross-border digital public services for citizens, Slovakia's score in 2024 was 55.0, significantly below the EU's 71.28. Compared to 2023, the score decreased by 7.8%, from 59.68, while the EU average score increased by 4.3%, from 68.37. Conversely, when looking at digital public services for national citizens, Slovakia reached a much higher score of 90.16 in 2024, compared to 84.44 in 2023.

Slovakia's total digital public services score for businesses was 73.38 in 2024 (2030 national target 100), after a decrease of -7.3% from 79.18 in 2023, standing below the EU average (86.23). The country is lagging compared to its national trajectory. The decline in the score is primarily linked to the unavailability of two services to cross-border users, namely the possibility to report the termination of a business activity and to apply for a certificate of insurance coverage. These two services were included in the eGovernment Benchmark assessment for the first time in 2024, which explains the decrease compared to the score obtained in the previous year. Notably, Slovakia's score for cross-border digital public services for businesses fell to 50 in 2024, experiencing a decline of 20.7% from 63.06 in 2023. These results are considerably below the EU averages of 73.13 in 2023 and 73.76 in 2024. On the other hand, digital public services for businesses available to national users in Slovakia had a considerably higher score of 96.76, having increased from 95.31 in 2023.

With respect to e-Health, in 2024, Slovakia reached a score of 72.03 (2030 national target: 100), after an increase of 8.6% from 2023. While this result is below the EU average (82.7), Slovakia's increase in access to e-Health records (from 66.34 in 2023) outpaced the EU's growth rate of 4.5% (from 79.12 in 2023). As such, **the country is well ahead of its trajectory**.

Overall, Slovakia's digital public services and access to e-Health records scores are below the EU average, with notable gaps in cross-border services for both citizens and businesses. However, the country experienced a more positive trend in relation to digital public services for national users, each receiving a score of over 90 and having improved compared to 2023. Solid growth was also experienced in the e-Health score.

Looking at specific characteristics of digital public services, Slovakia scores very well in terms of mobile friendliness (97.62, compared to the EU's 92.25) and user support (85.19, compared to the EU's 88.75), which suggests that services are provided through mobile-friendly interfaces and that online support, help features, and feedback mechanisms are available. On the other hand, considerable room for improvement exists in the transparency of service processes and design and management of personal data (52.99, compared to the EU's 69.46).

e-ID

Despite an eID scheme being available to the majority of the population, the use of eID in Slovakia is still lower than expected. A mobile ID application was launched in 2022, but it still has a number of limitations, such as: not being compatible with government websites, which limits online service access; lack of certain features (e.g. offline authentication and document signing capabilities); and fragmentation among different authentication schemes. At the same time, limited awareness and understanding among the population as regards the use of eID and related online services continues to undermine its uptake. Along similar lines, stakeholders state that the *Slovensko v Mobile* application would benefit from streamlined eID identification processes and more integrated, user-friendly services that enable seamless digital communication with public authorities. Notably, the share of e-Government users within the population has been decreasing from 81.59% in 2022 to 80.46% in 2023 and 76.15% in 2024

Slovakia's roadmap includes one measure focused on the implementation of a digital wallet. While no funding is dedicated to this measure, it is expected that the basic elements will be in place by the end of 2025, while the full implementation of the digital wallet is expected to be completed by the end of 2026.

Digitalisation of public services for citizens and businesses

Slovakia is working towards a score of 100 for the digitalisation of public services for citizens and businesses by 2030. Despite limited progress in this area since 2023, important measures have been launched in 2024, which are expected to provide the basis for the continued improvement of e-Government services (see below). While significant room for improvement remains in making digital public services available to cross-border users, the 2030 target is deemed reachable.

In 2024, progress was achieved in the digitalisation of public services primarily through the support of the RRF. One of the key actions was the adoption of a roadmap and investment plan for the digitalisation of 16 priority life situations. These will be embedded in a modernised IT platform – Slovensko 3.0 – and will allow citizens and businesses to complete a series of administrative procedures digitally, in one location. The Slovensko 3.0 platform is a positive example of simplification and centralisation in the delivery of digital public services. It delivers digital services based on key life events (e.g. starting a business), thus prioritising a user-centric approach, allowing users to access all services in one place.

Moreover, **Slovakia has established the Government Cloud (GovCloud) platform**, which provides IaaS, PaaS, and SaaS services to critical state systems through a centralised catalogue. The platform,

implemented within the framework of the Slovak RRP, enables ministries to provision resources, such as servers and software licenses, through a unified web interface, reducing operating costs by 15–20% through shared infrastructure. Overall, activities aimed at the digitalisation of public services continue to be guided by the **National Concept of Informatisation of Public Administration**, which is currently being updated to shift towards a more proactive and personalised approach to public services.

The relevance of actions aimed at developing digital public services is underscored by the results of the 2025 Eurobarometer, which reveal that 89% of Slovaks find accessing digital public services online important, above the EU average of 84% and increasing by 5 percentage points compared to 2024.

2024 recommendation on digital public services: Strengthen the digital transformation of public services and actively encourage the adoption of electronic modalities by both workers and retired citizens.
In 2024, Slovakia continued the implementation of existing measures but did not take any new measure. Plans are underway to enhance the digitalisation of public services, including 16 priority life situations, which are expected to play a key role in meeting the 2030 target. While progress has been made, the implementation process is still ongoing, and the full benefits of these efforts are yet to be realised.

Slovakia is seeking to exploit digital technologies to reduce the administrative burden on citizens, the public administration and businesses. Once operational, the 16 digital priority life situations are expected to simplify the carrying out of several administrative tasks. Furthermore, the Slovak RRP includes an investment to digitally transform 34 public administration sections, aiming to reduce the time required to complete public services by streamlining and automating administrative processes. MIRRI is also exploring the possibility of integrating AI solutions within the public administration to streamline administrative processes. Careful consideration and stringent rules will be required to ensure AI use remains aligned with its intended purpose.

Additional efforts aimed at reducing administrative burden include a technical solution conceived by the Statistical Office of the Slovak Republic to enable automated or semi-automated data collection. Once developed in collaboration with entrepreneurs and software developers, the software will reduce the administrative burden of statistical reporting on businesses. Another example is the new digital recruitment system planned to be developed to automate processes and improve multi-channel recruitment for the Slovak Armed Forces. This constitutes a new measure introduced in the adjusted roadmap, aimed at attracting more applicants to meet personnel need.

To ensure the security of digital services and sensitive data, and address sovereignty concerns, Slovak law requires critical infrastructures to process data within the EU/EEA under the amended Cybersecurity Act (2025). Global providers like AWS and Microsoft Azure host Slovak institutional data primarily in Frankfurt (Germany) and Amsterdam (Netherlands), while national platforms (e.g., e-prescriptions) increasingly use local experimental infrastructure. Such local experimental facilities allow for the testing of advanced technologies under controlled conditions. Notable examples include post-quantum cybersecurity ASICs, designed to protect against future cyber threats, and integrated HSM/KMS modules for secure cryptographic operations within the GovCloud framework.

Slovakia also participates in the **European Cloud working group in Brussels**, which is focused on creating a European cloud. While there is still a significant journey ahead to implement this initiative, Slovakia considers it crucial, as its data centres are currently working at capacity and face limitations in terms of public procurement.

e-Health

Slovakia still aims to reach a score of 100 in the provision of access to electronic health records. Considering the promising growth path experienced by the country, which largely exceeded the projected score for 2024 as per its trajectory, the target appears to be achievable.

In 2024, 80-100% of citizens had access to electronic health records, compared to 60-79% in 2023, since all citizens can now have an identity card with a chip. However, challenges continue to exist in the functioning and use of e-Health. Due to the relatively low uptake of eID, despite expanded accessibility, the use of e-Health records remains lower than expected. Gaps exist in the availability of medical images to citizens and access opportunities for legal guardians, authorised individuals, and disadvantaged groups. Additionally, the access services do not yet comply with WCAG 2.1 (Web Content Accessibility Guidelines). While there was an increase in the categories of healthcare providers supplying data to the online access service, public and private geriatric homes do not yet supply relevant data.

Moreover, healthcare professionals are facing some challenges in using the national e-Health system. To operate it, they rely on systems provided by private companies, which must be certified by the National Health Centre. However, difficulties in complying with the requirements sometimes arise, resulting in an administrative burden that may hinder their ability to integrate with the e-Health system. Additional hurdles faced by healthcare staff include often outdated applications and IT infrastructure in healthcare facilities and burdensome processes associated with their use. The need for centralising the key components of e-Health (e.g. centralised databases, a central way to access high-volume records, standardisation and compliance with the payment mechanism) was also stressed by stakeholders, along with the need for improvement of the quality of patient e-services and patients' level of digital skills.

Two measures are foreseen in the roadmap in relation to e-health, consisting of two awareness raising campaigns on the use of electronic health services, which are expected be launched in 2025. The first one will target healthcare professionals, aiming to educate them on registering information in the e-Health records. The second one will focus on patients, with the goal of informing them about the possibility to access the system and its functions. Going forward, additional initiatives to further improve the delivery of healthcare services through ICT are foreseen, building on the first phase of eHealth services programme (eSO1 project**,** *Elektronické služby zdravotníctva*), managed by the National Health Information Centre (NCZI). For instance, a procurement procedure is currently being prepared for a system meant to enable hospitals to share medical imaging, such as CT or MRI scans, which is currently limited by interoperability constraints.

Similar to digital public services, according to the Digital Decade Eurobarometer, 89% of Slovak citizens find it important to access or receive healthcare services online, above the EU average of 80% and increasing by 4 percentage points compared to 2024.

2024 recommendation on digital public services: (i) Offer a mobile application for citizens to access their electronic health records, enhancing the authentication method for logging into the online access services with full accessibility compliance. (ii) Make the data type of medical images available to citizens through the online access service. (iii) Expand the coverage of the online access service to ensure that all citizens can access their electronic health data online.
In 2024, Slovakia continued the implementation of existing measures but did not take any new measure. Access to electronic health records via an online portal has been expanded for citizens.

Although a mobile application is not currently available, citizens can authenticate themselves using a (pre-) notified eID that complies with the eIDAS Regulation. However, medical images are still not accessible to citizens.

Building a safe and human centric digital environment and preserving our democracy

The degree of online political participation in Slovakia in 2024 was relatively low. 16.42% of the population participated in online consultations, voted, or expressed their opinion on civic or political issues on websites or social media, which marked a slight increase from 2022 when 15.21% participated in this manner. Despite the increase, this share remained below the EU average of 20.45%.

The rise of digital technologies has increased the spread of disinformation and manipulated content in Slovakia, posing a threat to democratic processes. In September 2023, for the first time, Slovakia's parliamentary elections were influenced by AI-generated content. Two days before the vote, a fake audio conversation, supposedly between one of the main candidates and a journalist discussing election fraud, was shared on social media and quickly reached thousands of listeners. Although the audio clip was quickly debunked as AI-generated, it raised fears of election manipulation and, more broadly, provided a stark example of how AI may drive disinformation in similar contexts. In line with such concerns, the 2025 Eurobarometer shows that 86% of Slovaks believe that shaping the development of AI and new digital technologies to align with EU values and principles is an important area for activity for public authorities.

Slovakia has one of the highest rates of exposure to online hate speech in the EU, with 48.78% of the population experiencing hostile or degrading online messages towards groups based on factors such as religion or ethnicity in 2023, significantly exceeding the EU average of 33.5%. Young people (ages 16-24), of whom 61.32% encountered hate speech, were notably more exposed than adults (ages 25-64), for whom the percentage was 51.86%.

At the same time, more than half (54.08%) of the population stated that they had encountered untrue or doubtful information or content on internet news sites or social media in 2023, which was higher than the EU average of 49.25%. Of those who reported encountering such material, 29.77% took steps to verify its truthfulness, suggesting a relatively good level (compared to the EU average of 24.29%) of critical evaluation skills among those exposed to potentially misleading information. Looking at specific age groups, young people (ages 16-24) reported significantly more exposure than adults (25-64) did (67.11% v. 57.97%). Verification rates showed the reverse discrepancy, being considerably higher among young people (45.76%) than among adults (31.24%). Males reported slightly higher exposure levels (56.67%) than females (51.55%).

Slovakia's Digital Transformation Action Plan places specific emphasis on preventing disinformation. Under the plan, by 2026, measures are to be implemented aimed at preventing and combating disinformation, increasing digital literacy and addressing the impacts of digital and media on mental health. In parallel, the Action Plan for the National Concept of the Protection of Children in the Digital Space for 2024 – 2025 guides the implementation of Slovakia's strategy on children's safety in the digital space**.** The plan focuses on prevention through formal and informal education, the improvement of digital safety, and promotion of media literacy among children and their caregivers. Training for professionals working with children and research are planned to better address digital challenges. The plan also emphasises providing comprehensive assistance and aftercare to victims, ensuring a supportive safety net within the digital child protection system.

Slovakia

In line with broader EU trends, Slovak citizens consider public action to protect children online to be urgent. The majority of Slovaks, as per 2025 Eurobarometer results, believe that urgent action is needed to address the negative impact of social media on children's mental health (96%), protect children from cyberbullying and online harassment (95%), and put in place age assurance mechanisms to restrict age-inappropriate content (95%).

Leveraging digital transformation for a smart greening

While Slovakia is exploring digitalisation as a means to support the green transition and contribute to climate adaptation, the country's current efforts are limited in scope and coordination.

The project 'Digital Skills for the Green Future of Slovakia' is a flagship initiative in this area, bringing together private and public stakeholders to discuss and raise awareness around the skills needed to navigate the green and digital transitions. As part of this project, reference frameworks have been developed to identify the green and digital skills required across various professions. These are being tested to ensure accurate competence assessment, with the ultimate goal of creating a benchmark for evaluating individual skill levels. This will also enable employers to make informed decisions about investing in employee training.

According to the Digital Decade Eurobarometer, Slovak citizens believe that digital technologies can play a crucial role in tackling climate change challenges. 77% believe that digital technologies will be crucial in combating climate change by 2030 (an increase by 3 percentage points from 2024), with 84% also agreeing that public authorities should focus on ensuring digital technologies support the green transition (an increase by 5 percentage points compared to 2024).

Among the Slovak population, environmental considerations largely do not figure into decisions on the purchase of new ICT devices or when disposing of old ones. In 2024, only approximately 8% of the Slovak population recycled their old laptop or tablet, mobile or smartphone, below the EU average of 10.93% for old mobiles and smartphones and 11.31% for old laptops and tablets. Moreover, only 13.89% of people considered energy efficiency to be an important characteristic when purchasing ICT devices, below the EU average of 19.35% in 2024. An even smaller share (6.1%) considered the eco-design of the device important, which is half of the EU average (12.04%). Price, followed by the speed of the hard drive or the processor, were considered significantly more important in the purchasing of ICT devices than environmental aspects.

2024 recommendations on green ICT: (i) 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. (ii) 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.

In 2024, Slovakia continued the implementation of existing measures through the project 'Digital Skills for the Green Future of Slovakia' but did not take any new measure. Future plans aim to strengthen the coordination of green and digital transformation activities within the public administration, for instance by setting sustainability standards while prioritising the integration of digital technology, and by evaluating sustainable ICT practices within the public administration.

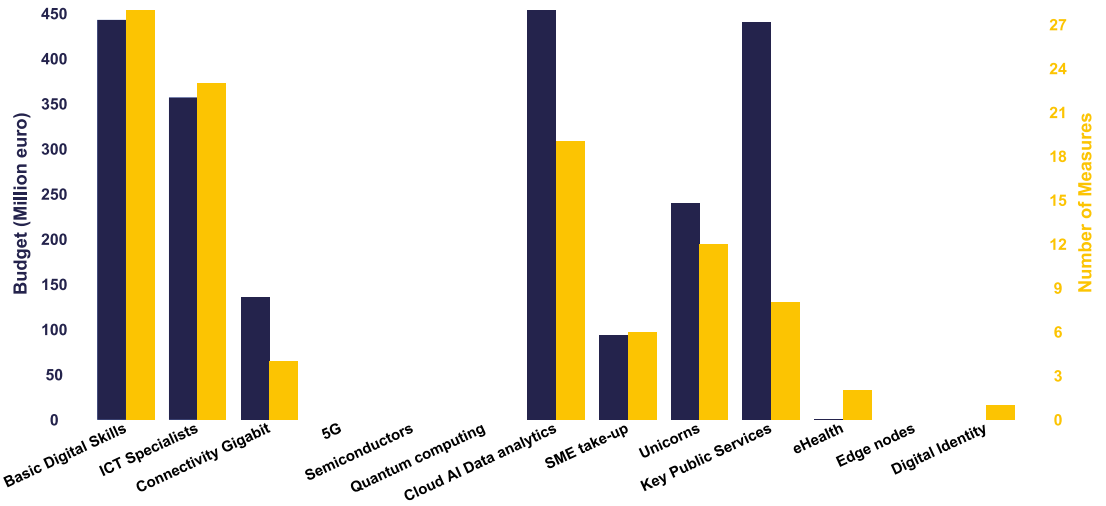
Annex I – National roadmap analysis

Slovakia's national Digital Decade strategic roadmap

Slovakia submitted an addendum to its Digital Decade roadmap on 27 November 2024, which contains 11 additional measures and 2 revised trajectories. Due to the timeline of Slovakia's standard legislative process, which mandates that all revisions and new measures be submitted to the Government by June each year for the budget finalisation in September, Slovakia was unable to draft measures directly addressing the recommendations provided by the State of the Digital Decade report in June 2024.

Nonetheless, the country introduced new measures aimed, in particular, at: supporting the digitalisation of businesses; the promotion of an environment that is conducive to exchange and innovation; and the enhancement of digital skills. All of these are relevant to the reality and needs of Slovakia's digital landscape. However, additional national funding for the new measures could not be secured. This implies they will have to rely on external financing, particularly from the RRF and Programme Slovakia. Such a limitation might also limit flexibility in adding or expanding measures going forward.

Measures and budget in national roadmap[10]



In total, the roadmap is composed of 127 measures with a budget of EUR 2.26 billion, equivalent to 1.74% of Slovakia's GDP.

The adjusted roadmap addresses a limited number of roadmap recommendations issued in 2024:

- *Propose national target values for FTTP and edge nodes*: the roadmap still lacks a target and trajectory for edge nodes and FTTP.
- *Recompute the VHCN trajectory using the correct* values: the VHCN trajectory was not recomputed using the correct observed values.
- *Re-evaluate possible efforts on 5G coverage, basic digital skills and ICT specialists*: targets associated with 5G coverage, basic digital skills and ICT specialists have remained

[10] When referring to national roadmaps, data used in this report are those declared by the Member States in their national roadmaps, on the basis of the Commission's guidance (C(2023) 4025 final). Data might reflect possible variations in reporting practices and methodological choices across Member States. No systematic assessment of the extent to which Member States followed the guidance was carried out.

unchanged. However, the intermediate projected values for the share of ICT specialists were decreased between 2025 and 2028, and those for 5G coverage were increased between 2024 and 2028, in order to better reflect reality.

- *Reinforce measures aimed to contribute to digital skills development and to foster connectivity*: three of the newly introduced measures aim to support the development of digital skills, while one measure was introduced to foster connectivity, though this relates to the development of a supercomputer infrastructure, rather than directly to digital networks.
- *Provide more information on the implementation of digital rights and principles (and Digital Decade general objectives), including what national measures contribute to it*: A systematic contribution to the digital rights and principles was not carried out. Information on the implementation of digital rights and principles was only highlighted for the newly introduced measures.
- Review the budget estimated for all presented measures, highlighting the different sources, including more detail on EU funds such as RRF: no additional details were provided on the budget allocated to the different measures.
- *Provide further detail on the consultation process of the roadmap*: A detailed explanation of the consultation process behind the roadmap adjustment was provided.

Overall, Slovakia's roadmap presents a comprehensive set of measures, which are grounded in multiple national level strategies and action plans. Together, these aim to support the digitalisation of Slovakia's economy and society from multiple angles, linking to all of the Digital Decade targets (except for edge nodes) and objectives. However, certain aspects, such as promoting leadership and sovereignty, and contributing to the green transformation, would require more concerted efforts. In total, the measures have a value of EUR 2.26 billion.

Annex II – Factsheet on multi-country projects (MCPs) and funding

Multi-country projects and best practices

Slovakia is a member of the Local Digital Twins towards the CitiVERSE EDIC and an observer to the Alliance for Language Technologies EDIC. Slovakia is directly participating in the IPCEI on Microelectronics and Communication Technologies (IPCEI-ME/CT). Slovakia is also a participating state of the EuroHPC Joint Undertaking (JU) and of the Chips JU.

Slovakia has not yet presented any project in the framework of Digital Decade's Best Practice Accelerator[11].

EU funding for digital policies in Slovakia

Slovakia allocates 21% of its total recovery and resilience plan to digital (EUR 1.2 billion)[12]. In addition, under cohesion policy, EUR 886 million (representing 7% of the country's total cohesion policy funding), is dedicated to advancing Slovakia's digital transformation[13]. According to JRC estimates, EUR 1.8 billion directly contribute to achieving Digital Decade targets (of which EUR 1.1 billion comes from the RRF and EUR 670 million from cohesion policy funding)[14].

Slovakia's recovery and resilience plan was updated in May 2025. Notably, the plan makes a significant contribution towards the digitalisation of public services, aiming to provide better services for citizens and businesses by introducing user-friendly e-government solutions. Good progress was made in this area in 2024, particularly with the adoption of a roadmap for investment for the digitalisation of 16 priority life situations. Digitalisation of school infrastructure and strengthening of digital skills across the population are key priorities of the Slovak RRP. The plan further supports the digital transformation of the economy and society, for instance through the development of a quantum computing ecosystem, the ongoing commissioning of a supercomputer and the digitalisation of businesses.

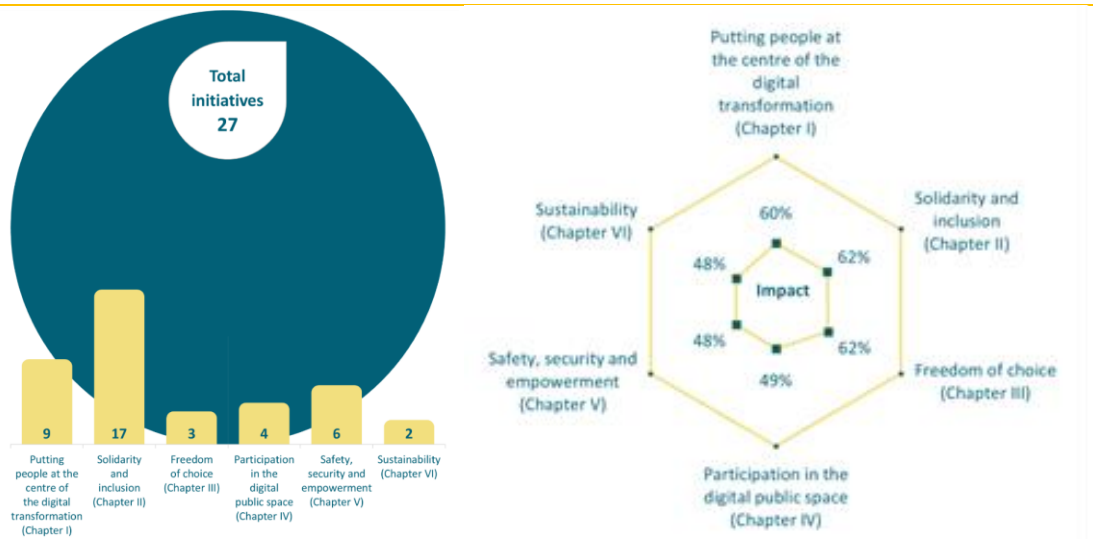
[11] The Best Practice Accelerator (BPA) is a platform that enables Member States to share successful measures and challenges encountered in their efforts to meet their Digital Decade targets and objectives. Best practices are made available to Member States via the BPA Repository and showcased in regular workshops, currently focused on three thematic clusters: Digital Skills, Green IT, and the Uptake of Digital Technologies.

[12] The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation. Last data update: 16 May 2025.

[13] 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.

[14] Joint Research Centre, Nepelski, D. and Torrecillas, J. Mapping EU level funding instruments 2021-2027 to Digital Decade targets – 2025 update, Publications Office of the European Union, Luxembourg, 2025, JRC141966. Last data update: 10 March 2025.

Annex III – Digital Rights and Principles[15]



Activity on Digital Rights and Principles (figure 1)

Slovakia has shown rather limited activity in implementing digital rights and principles, with the overall number of initiatives of around a half or less of the EU average (77). No information is available on new initiatives launched in 2024. Slovakia is most active in the area of Putting people at the centre of the digital transformation (I). There is room for improvement, especially with regards to A protected, safe and secure digital environment (V) where less activity has been identified.

Impact of Digital Rights Initiatives (figure 2)

Quantitative impact indicators developed by the support study illustrate the level of implementation of digital rights initiatives on the ground. Based on available data, they estimate the impact of measures implemented by key stakeholders in Slovakia (mainly national government) and how these are perceived by citizens.

The indicators suggest that Slovakia is most successful in implementing commitments related to Solidarity and inclusion (II) and Freedom of choice (III). There is room for strengthening efforts in areas where the impact of digital rights initiatives appears to be limited, notably on Safety, security and empowerment (V) and Sustainability (VI).

According to the Special Eurobarometer 'Digital Decade 2025', 48% of citizens in Slovakia think that the EU protects their digital rights well (a 1% increase since 2024). This is above the EU average of 44%. Citizens are particularly confident about getting freedom of assembly and of association in the digital environment (58%, below the EU average of 59%). They are most worried that their right to a safe digital environment and content for children and young people is not well protected (62%, above the EU average of 48%).

[15] Based on a study to support the Monitoring of the Implementation of the Declaration on Digital Rights and Principles, available here. For a more detailed country factsheet accompanying the study, click here.