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PART 11/27

COMMISSION STAFF WORKING DOCUMENT

Digital Decade 2025 country reports

Accompanying the document

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

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

Germany

Germany

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Executive summary

Germany continues to excel in domains related to developing advanced technologies, such as semiconductors and edge nodes. However, the country is lagging behind in providing digital public services, has low digital skills, and incomplete high-capacity network coverage. This highlights the need for more focused measures, which would also further boost businesses' uptake of digital technologies.

Germany shows a substantial level of ambition in its contribution to the Digital Decade, with nine national targets, 89% of which are aligned with the EU 2030 targets. The country is following its trajectories well with 75% of them being on track (considering 2024 trajectories defined for 4 KPIs out of 8 analysed). Germany addressed 33% of the 12 recommendations issued by the Commission in 2024 by making some changes through new measures.

Germany's new Federal Government assumed office in early May 2025. The government's coalition agreement outlines ambitious goals for digital policy and digitalisation, and the focus on digital policy is reflected by the newly established Federal Ministry for Digitalisation and Government Modernisation. This coalition agreement may result in an accelerated digitalisation of Germany, thereby contributing to the objectives of the Digital Decade.

Digital Decade KPI (1)	Germany				EU		Digital Decade target by 2030	
	DESI 2024 (year 2023)	DESI 2025 (year 2024)	Annual progress	National trajectory 2024 (3)	DESI 2025	Annual progress	DE	EU
Fixed Very High-Capacity Network (VHCN) coverage	74.7%	77.4%	3.5%	-	82.5%	4.9%	100.0%	100%
Fibre to the Premises (FTTP) coverage	29.8%	36.8%	23.4%	-	69.2%	8.4%	100.0%	-
Overall 5G coverage	98.1%	99.1%	0.9%	-	94.3%	5.9%	100.0%	100%
Edge Nodes (estimate)	358	652	82.1%	-	2257	90.5%	-	10000
SMEs with at least a basic level of digital intensity (2)	-	79.9%	1.6%	-	72.9%	2.8%	91.0%	90%
Cloud	38.5%	-	-	-	-	-	-	75%
Artificial Intelligence	11.6%	19.8%	71.0%	-	13.5%	67.2%	-	75%
Data analytics	37.1%	-	-	-	-	-	-	75%
AI or Cloud or Data analytics	58.0%	-	-	-	-	-	-	75%
Unicorns	67	69	3.0%	-	286	4.4%	-	500
At least basic digital skills	52.2%	-	-	-	-	-	80.0%	80%
ICT specialists	4.9%	5.3%	8.2%	4.9%	5.0%	4.2%	5.3%	~10%
eID scheme notification		Yes						
Digital public services for citizens	75.8	78.9	4.1%	75.8	82.3	3.6%	100.0	100
Digital public services for businesses	78.6	77.5	-1.4%	78.6	86.2	0.9%	100.0	100
Access to e-Health records	87.0	87.0	0.0%	100.0	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, 74% of German citizens consider that the digitalisation of daily public and private services is making their lives easier. Concerning the action of the public authorities, 88% consider it important to counter and mitigate the issue of fake

news and disinformation online, and regarding competitiveness, 82% 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

Germany is making significant strides in expanding its connectivity infrastructure, with 5G coverage nearly meeting the Digital Decade target, and an ambitious national goal for 100% fibre-to-the-premises (FTTP) by 2030. The country is a leader in the number of edge nodes and is taking proactive steps in quantum computing and semiconductor technologies. While several measures, particularly for FTTP, are expected to yield results soon, Germany still faces challenges. It lags behind the Digital Decade's gigabit connectivity objectives and struggles with access to Very High-Capacity Networks (VHCN) in rural areas, where coverage is below the EU average. Additionally, FTTP availability is limited to only a fraction of households, representing half of the EU average coverage. Although Germany has nearly achieved full 5G coverage, actual usage based on 5G SIM cards remains poor. Despite the relatively high number of unicorns, there is still room to improve the availability of funding for start-ups and to reduce their administrative burdens.

Protecting and empowering EU people and society

Germany faces significant challenges in developing digital skills, having achieved only modest improvements in this area. The German government is making strides in several areas, yet it still behind in some key aspects. This not only hinders the uptake of digital services, but also effectively limits the workforce's ability to use data to improve business services. This issue is particularly relevant because, according to the German Country Report of 2024, SMEs' uptake of AI was hindered by the limited skills in this area. Even so, the German authorities have chosen not to introduce substantial new measures in the national roadmap, preferring instead to allow existing initiatives to take their course.

Germany tends to view these challenges through a wider lens, taking a holistic approach rather than addressing each metric individually. This method is reflected in various aspects, such as Germany's plans to increase the number of ICT specialists. Nonetheless, considerable room for improvement remains, especially in the use of electronic identification and the further digitalisation of public services. These gaps must be addressed to take full advantage of the opportunities presented by the expanding digital landscape and to ensure that Germany remains competitive and innovative on the global stage.

Leveraging digital transformation for a smart greening

Germany prioritises the dual green and digital transition and continues to implement key measures at both federal and state levels. The German population outperforms the EU average in recycling electronics, such as computers, phones, and tablets, although the overall recycling rates for IT equipment remain relatively low.

National digital decade strategic roadmap

On 21 December 2024, Germany submitted a revised national Digital Decade roadmap, addressing recommendations from the 2024 Country Report. The revised roadmap included stakeholder consultation. It is composed of 50 measures with a budget of EUR 102.1 billion, comprising EUR 46.8 billion from public budgets (equivalent to 1.09 % of GDP). New targets were added for ICT specialists and digitalisation of public services for citizens and businesses.

The revision brings impulses on quantum, AI and connectivity, as well as targeting several objectives in broader measures. However, the adjusted roadmap could do more to address the challenges in the area of digitalisation of public services for citizens and businesses.

Funding & projects for digital

Germany allocates 48% of its total recovery and resilience plan to digital (EUR 13.3 billion)[1]. In addition, under cohesion policy, EUR 2.2 billion, representing 11% of the country's total cohesion policy funding, is dedicated to advancing Germany's digital transformation[2]. Germany participating directly in the IPCEI on Microelectronics and Communication Technologies (IPCEI-ME/CT) and in the IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS). It is also a participating member of the European High Performance Computing Joint Undertaking (EuroHPC JU) and of the Chips JU[3].

Germany has contributed to the Best Practice Accelerator[4] by sharing several best practices in the 'Digital Skills' cluster as well as in the 'Business Uptake' cluster. In this context, the AI Opportunity Market (MaKi) and the Federal IPv6 Programme are noteworthy.

Digital rights and principles

According to a support study, Germany has been relatively active in implementing the **European Declaration on Digital Rights and Principles**, with 74 initiatives overall and 3 new initiatives launched in 2024. Germany is most active in the area of digital education, training and skills. Less activity has been identified with regards to putting people at the centre of the digital transformation. Measures in the area of freedom of choice appear to have most impact on the ground, in contrast to those addressing safety, security and empowerment.

Recommendations

- **Digital public services:** Accelerate the digitalisation of key public services by making additional public services available online, improving interoperability, as well as front-end and back-end digitalisation.
- **eID**: Launch targeted measures to ensure eID uptake and use.
- **ICT specialists:** Launch targeted measures to increase the attractiveness of STEM disciplines at school to boost the number of young people, including girls and women, interested in taking up ICT-related studies or careers.
- **Basic digital skills:** Improve the effectiveness of existing measures and evaluate whether increased efforts and/or additional measures are necessary in particular in the area of formal education.
- **Connectivity infrastructure**: Accelerate infrastructure roll-out of very high-capacity digital networks, especially fibre optics.

[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] Corrigendum to Digital Decade Country Report Germany 2024: Germany is not a member of the Local Digital Twins towards the CitiVERSE EDIC.
[4] 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 published in the BPA Repository and showcased in regular workshops, currently focused on three thematic clusters: Digital Skills, Green IT, and the Uptake of Digital Technologies.

- **Unicorns/start-ups:** Implement measures to improve access to funding and reduce administrative burdens.
- **Cybersecurity:** Increase efforts in cybersecurity, particularly by increasing awareness amongst private and public entities.

A competitive, sovereign and resilient EU based on technological leadership

Germany has historically had a strong export-driven economy. However, with the economic momentum slowing, there is a pressing need to accelerate structural reforms and harness the benefits of the digital sphere to rejuvenate growth.

Germany's new Federal Government assumed office in early May 2025. The government's coalition agreement outlines ambitious goals for digital policy and digitalisation, and the focus on digital policy is reflected by the newly established Federal Ministry for Digitalisation and Government Modernisation. This coalition agreement may result in an accelerated digitalisation of Germany, thereby contributing to the objectives of the Digital Decade.

Maintaining Germany's leading position in Europe in the development of advanced technologies, such as semiconductors and edge nodes, is a key policy goal for the German authorities. Long-term measures have been put in place, and some of these have already shown their effectiveness. The German focus harmonises seamlessly with the goals of the Digital Decade in these areas. However, additional steps need to be taken in order to secure continued international competitiveness and sovereignty both for Germany and the European Union.

Although the trends and initiatives associated with connectivity infrastructure, such as 5G and Fibre-to-the-Premises (FTTP), are promising, stakeholders still report shortcomings, especially in rural areas, as well as low scores in 5G SIM card uptake. The German ICT sector represented 4.77% of the gross value added in 2022[5]. Additionally, R&D spending in the ICT sector is also low, at only 11.47% of the total R&D business expenditure, which was one of the lowest recorded in the EU in 2021. Furthermore, the R&D personnel in the ICT sector was 13.09% of the total R&D personnel, which was also one of the lowest in the EU.

Germany is doing well overall in the field of cybersecurity. Most Germans took at least one precautionary action to protect their personal data, and businesses have employees who are more aware of ICT security obligations than their EU counterparts. Germany is also at the forefront of the roll-out of Internet Protocol version 6 (IPv6). Germany reports that it has implemented the 5G Cybersecurity Toolbox.

According to the 2025 Eurobarometer[6], 86% of Germans believe that building an efficient and secure digital infrastructure, which includes connectivity and data processing facilities, is important.

Building technological leadership: digital infrastructure and technologies

Germany is actively rolling out connectivity infrastructures. In particular, 5G coverage has practically reached the Digital Decade target and Germany has set an ambitious national target of 100% for FTTP by 2030. Germany remains a European leader in the number of edge nodes, with complementary measures on both quantum computing technologies and semiconductors. Several measures already introduced, are reported to show dividend in the coming year, especially concerning FTTP.

[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.
[6] Special Eurobarometer 566 on 'the Digital Decade' 2025: https://digital-strategy.ec.europa.eu/en/news-redirect/883227

Germany

Connectivity infrastructure

Germany is at 77.38% of Very High Capacity Network (VHCN) coverage (2030 national target of 100%) after a progression of +3.5% and stands below the EU average of 82.49%. The country did not provide a national trajectory point for 2024, arguing that it would be difficult to do so because the roll-out in Germany is driven primarily by the private sector.

For households in sparsely populated areas, Germany's VHCN coverage was 37.61% in 2023 and 45.2% in 2024, much below the EU's 55.61% and 61.89% respectively, but Germany's growth rate of 20.2% outpaced the EU's 11.3%.

In the realm of Fibre to the Premises (FTTP) coverage, Germany's total coverage was 29.8% in 2023 and 36.78% in 2024, significantly lower than the EU's 63.87% and 69.24% respectively. The country did not provide a national trajectory point for 2024. However, Germany's growth rate of 23.4% exceeded the EU's 8.4%. For households in sparsely populated areas, Germany's FTTP coverage was 25.57% in 2023 and 33.91% in 2024, below the EU's 52.55% and 58.78%, but Germany's growth rate of 32.6% was higher than the EU's 11.9%. Germany is still second last in the EU in this metric.

Germany's overall 5G coverage was 98.14% in 2023 and 99.05% in 2024, surpassing the EU's 89.01% and 94.35% respectively. Germany's growth rate of 0.9%, compared to the EU's 6.0%, can be attributed to the already saturated 5G coverage levels. The country did not provide a national trajectory point for 2024, likely due to being close to the 100% target. For households in sparsely populated areas, Germany's 5G coverage was 92.77% in 2023 and 96.05% in 2024, higher than the EU's 70.10% and 79.57%.

For 5G coverage in the 3.4–3.8 GHz band, Germany's total coverage was 43.85% in 2023 and 49.5% in 2024, below the EU's 51.06% and 67.72% respectively. Germany's growth rate of 12.9% was lower than the EU's 32.6%. For households in sparsely populated areas, Germany's 5G coverage in this band was 4.81% in 2023 and 6.66% in 2024, significantly lower than the EU's 15.86% and 25.98%, and Germany's growth rate of 38.5% was lower than the EU's 65.1%.

Additionally, Germany's broadband take-up indicators show a mixed performance compared to the EU average. In 2023, 46.88% of fixed broadband subscriptions in Germany were at speeds of 100 Mbps or higher, which is lower than the EU's 65.9%. By 2024, this figure rose to 52.69%, still below the EU's 71.88%. However, Germany's growth rate of 12.4% was higher than EU's 9.1%. For subscriptions at speeds of 1 Gbps or higher, Germany lagged behind the EU. In 2023, only 5.45% of German fixed broadband subscriptions were at this speed, compared to the EU's 18.47%. In 2024, this increased to 5.72%, still below the EU's 22.25%. Germany's growth rate of 5.0% was lower than the EU's 20.5%. Regarding 5G SIM cards, Germany showed significant growth. In 2023, 16.54% of the population had 5G SIM cards, lower than the EU's 21.7%. By 2024, this figure surged to 38.18%, surpassing the EU's 35.56%. Germany's growth rate of 130.8% was significantly higher than the EU's 63.9%.

VHCN and FTTP

The German target for VHCN and FTTP is 100% by 2030, in line with the EU target. In a country marked by urban-rural disparities, achieving full gigabit connectivity is essential to ensure inclusive access. As mentioned above, Germany's current FTTP coverage is limited. In order to achieve the 100% target by 2030, roll-out would have to accelerate considerably. Additionally, a higher VHCN coverage in rural areas may also assist in eroding socio-economic divides.

The Gigabit Strategy of 13 July 2022 (*Gigabitstrategie*) continues to be the basis for implementing measures to achieve the targets related to gigabit connectivity and 5G roll-out. According to the Progress Report on the Gigabit Strategy (October 2024), 87 of the 100 measures have been completed or are currently being implemented. In addition, 35 new measures were added, including a joint copper-fibre migration concept, a fibre optic information campaign and a nationwide mobile measurement week. Several new measures based on the Gigabit Strategy were introduced recently.

Germany wants existing measures that have already been introduced, such as the Gigabit Strategy, to take full effect before introducing additional measures. The allocations from the national budget to two existing measures funded by the Gigabit Strategy were adjusted. While the budget of the Gigabit funding scheme 2.0 increased, the budget of the *kfW Investitionskredit digitale Infrastruktur* decreased.

Germany included the 'Gap Closure Pilot Program' (*Lückenschluss-Programm*) in its Gigabit funding scheme 2.0 in June 2024. The incentive to roll out gigabit infrastructure in rural areas is low, as it is usually unprofitable given the long distances and sparse population. To offset this challenge, the programme creates more synergies between the investments of telecommunication companies and public funding, especially in rural areas.

The roll-out of gigabit infrastructure is reportedly often hampered by high construction costs, a shortage of skilled workers and labour-intensive public approval procedures. According to the German Chamber of Industry and Commerce (*Deutsche Industrie- und Handelskammer* (DIHK)), permit enforcement is still based on outdated standards, even if there are accepted industry standards which aim to reduce the burden and costs of deploying fibre.

A survey by the DIHK shows that 75% of companies were satisfied with the current availability of fast internet at their location.

2024 recommendation on connectivity infrastructure: maintain the recent higher pace of deployment of the fibre infrastructure to reach the Digital Decade target.
In 2024, Germany made some efforts to address the recommendation through new policy actions. No new measures were introduced in the revised roadmap. However, the budget of some Gigabit Strategy measures was adjusted, introducing the 'Gap Closure Pilot Programme' to incentivise roll-out constituting an overall increase of budget on connectivity measures.

5G

Latest reports place Germany's 5G coverage at 99.05% and the country is therefore on track to reach its target of 100% by 2030 in line with the EU level of ambition. However, 5G coverage in the 3.4-3.8 GHz band was at 43.85%, below the EU average of 51.34%.

Although the current 5G coverage is almost at target, 5G uptake, measured as the share of SIM cards across the population, is only at 38.18%, slightly above the EU average of 35.56%. The uptake is therefore still conservative, but the trend is positive, as the share has risen from 16.56% the year before, which indicates a strong growth rate.

Concerning the extension of mobile spectrum usage rights, the Federal Network Agency (*Bundesnetzagentur)* made far-reaching requirements for mobile network coverage. In the future, each network operator will have to meet several requirements. Firstly, they must supply at least 99.5% of the area nationwide with a transmission rate of at least 50 Mbps in downlink by 2030. Secondly, each allocation holder must supply at least 99% of households in rural areas in each federal

state with a transmission rate of at least 100 Mbps in downlink by 2029. Lastly, they must ensure uninterrupted access for end users to wireless voice and broadband data services along transport routes by 2029. Each allocation holder must provide all federal roads with a transmission rate of at least 100 Mbps in downlink.

2024 recommendation on connectivity infrastructure: ensure sufficient access of new players to spectrum for innovative business-to-business (B2B) and business-to-consumer applications and encourage operators to continue the deployment of 5G or stand-alone core networks.

In 2024, Germany made efforts to address the recommendations through new policy actions. The requirements announced by the Federal Network Agency constitute a new measure to address the recommendations. Additionally, since November 2019, property users have been able to apply for frequencies in the 3.7-3.8 GHz sub-band to create their own local 5G networks on factory grounds or other types of properties for several use cases. These include factory automation and campus networks, but not the provision of public communication networks.

Semiconductors

Germany's roadmap and long-term investment strategy continue to emphasise semiconductors as a key priority.

No changes and/or new measures on semiconductors have been presented in the amended roadmap for 2025. This means that the Important Project of Common European Interest (IPCEI) on Microelectronics and Communication Technologies, and the investments planned under the European Chips Act remain the cornerstones in this area. Regarding the IPCEI, the Federal Ministry for Economic Affairs and Energy (*Bundesministerium für Wirtschaft und Energie* (BMWE)) is providing several billion euro in funding for 31 projects from 11 federal states, thereby boosting the progress on this area. These initiatives have the potential to attract further significant innovations to Germany, which will in turn support the EU's technological sovereignty.

On 6 November 2024, the BMWE published a funding announcement for innovative investment projects under the European Chips Act (*ECA – 'Förderbekanntmachung'*). This serves as an additional building block of the European Chips Act with regard to the goals of ensuring European competitiveness and innovation capacity in the field of semiconductor technologies, adapting the industry to structural changes and strengthening Europe's resilience and security of supply.

Another important development is the joint investment agreement reached between several companies for the construction and operation of a state-of-the-art chips factory in Dresden. The Federal Government is providing support of up to EUR 5 bn, which is in addition to the EUR 10 bn in investment planned by the industry partners in the European Semiconductor Manufacturing Company joint venture.

Edge nodes

According to the Edge Node Observatory, 652 edge nodes were deployed in Germany by 2024. This constitutes an increase compared with 2023, when 358 edge nodes were deployed. As such, Germany continues to be a leader in the EU in this metric.

However, the country has not set a target for edge nodes.

Germany's main activity in this area remains its coordination of the IPCEI on Next Generation Cloud Infrastructure and Services. The project will support the development of software and data processing capabilities to exploit edge nodes.

Quantum technologies

Germany maintains its ambitious target for quantum technologies in its revised roadmap[7]**.** The German national strategy on quantum technologies calls for the country to be a leader in the sovereign development and deployment of quantum technologies. Germany aims to achieve this target through project funding and public procurement for quantum computing systems.

Accordingly, Germany has launched several initiatives and has included in its revised roadmap a new measure with a budget of EUR 325 million, which aims to provide regional funding measures to establish hubs for quantum technologies/computing.

Supporting EU-wide digital ecosystems and scaling up innovative enterprises

Establishing a foundation for European enterprises to scale up is essential for European sovereignty and for maintaining economic and social prosperity. Encouraging the growth and adoption of new technologies, even by non-tech enterprises, is a key aspect of the Commission's vision for a thriving EU.

Data from 2024 indicates that Germany performs in line with the EU average regarding the widespread adoption of data analytics and cloud computing, while it performs much better than the EU average regarding AI adoption. The country remains a leader in the EU in terms of the number of unicorns. However, stakeholders report significant administrative burdens, particularly regarding late-stage financing. Additionally, since 2021, the costs of complying with national legislation have increased, and there are indications that lengthy and complex administrative procedures are deterring investment.

SMEs with at least basic digital intensity

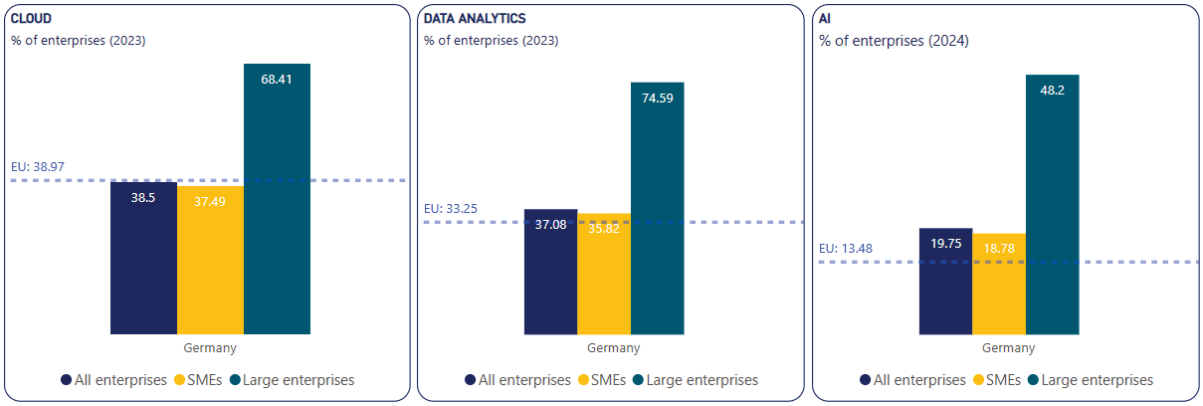
In 2024, 4 out of 5 (79.87%) SMEs in Germany had at least a basic level of digital intensity, a slight increase from 77.35% in 2022, growing at an annual rate of 1.6% (2022 is the last comparable year that used a similar methodology for measuring the digital intensity of enterprises). This positioned the country above the EU average of 72.91% in 2024. More specifically, 39.93% of SMEs in Germany had a high or very high digital intensity, again surpassing the EU average of 32.66%, and demonstrating good progress at EU level.

Germany has maintained its target of 91% basic digital intensity among SMEs by 2030. As mentioned, Germany is above the EU average, but still below the EU-wide target of 90%. It seems doubtful whether the national target will be reached by 2030, although Germany could come close to it.

2024 recommendation on the digitalisation of SMEs: continue supporting the digitalisation of SMEs.
In 2024, Germany continued the implementation of existing measures but did not take any new measure. No new trajectories or measures were introduced in the amended roadmap. Germany has, therefore, continued supporting the digitalisation of SMEs largely in the same way as before.

[7] By 2030, Germany aims to achieve the sovereign development and deployment of quantum computing systems based on all relevant technology platforms through direct project funding, public procurement and public equity (in particular venture capital). Regional hubs and innovation centres should make available at least 16 systems for research and industrial applications by 2030.

Take up of cloud/AI/data analytics



As shown by the latest available data, in 2023, 38.5% of German enterprises adopted cloud services, thus aligning with the EU average of 38.97%. Among SMEs, the uptake was 37.49%, whereas 68.41% of large enterprises utilised cloud services. This creates a difference of 30.92 percentage points in uptake between SMEs and large enterprises in Germany, which is in line with the EU level gap.

Concerning data analytics, 37.08% of enterprises in Germany adopted data analytics in 2023, beating the EU average of 33.25%. Among these, 35.82% of SMEs used data analytics, while the proportion was significantly higher for large enterprises at 74.59%. Hence, the gap in data analytics engagement between SMEs and large enterprises was 38.77 percentage points, consistent with the EU gap.

In 2024, 19.75% of enterprises in Germany were using AI technology, ahead of the EU average of 13.48%. The country did not provide a national trajectory point for 2024. The uptake of AI among German enterprises thus increased by 71% compared to 2023, when 11.55% were using AI. The country did not provide a national trajectory point for 2024.More specifically, in 2024, the uptake among SMEs was recorded at 18.78%, while approximately 1 out of 2 large enterprises (48.2%) adopted AI technology. This corresponds to a gap of 29.42 percentage points between SMEs and large enterprises, which aligns with the EU level gap.

According to the latest available data (2023), 57.97% of enterprises in Germany used AI technologies, sophisticated or intermediate cloud computing services, or performed data analytics, which is slightly above the EU average of 54.7%. The uptake among SMEs was slightly lower at 56.94%, while large enterprises demonstrated a significantly higher adoption rate of 88.59%. This indicates a percentage point difference of 31.65 in uptake between SMEs and large enterprises in Germany, which is in line with the EU level gap.

As such, Germany displayed a solid performance in the adoption of cloud computing, data analytics, and artificial intelligence technologies, aligning closely with or slightly surpassing EU averages across these areas. However, the adoption gap between SMEs and large enterprises remained substantial across all three technologies, with large enterprises demonstrating significantly higher uptake. These disparities were consistent with EU trends.

In its adjusted roadmap, Germany maintains its combined target at 75%. The adjustment does not contain a breakdown per technology anymore but instead presents a single trajectory for the indicators of the three technologies combined (adoption of either cloud or data analytics or AI).

- **Cloud**

Germany has several recent projects connected with IPCEI-CIS (Important Projects of Common European Interest in the field of Cloud Infrastructure and Services). IPCEI-CIS concerns the development of the first interoperable and openly accessible European data processing ecosystem, and

will develop data processing capabilities, software and data sharing tools. Germany has reported that it is working on several projects that are going to leverage the IPCEI-CIS.

Germany is also a driving force behind the new 8ra-initiative, which formed around the IPCEI-CIS. The 8ra-initiative aims to leverage the IPCEI-CIS and the framework provided for long-term success. This will be done primarily by establishing a Multi-Provider Cloud-Edge Continuum that is decentralised, interoperable and secure. This will enable European enterprises to remain competitive in the digital economy. As such, Germany is coordinating emerging initiatives, with the goal of integrating them into the 8ra-initiative and building on existing technologies. As a co-coordinator of this IPCEI, Germany will support other Member States that intend to foster the uptake of IPCEI-CIS technologies.

- **Data Analytics**

There are no new developments to report that are relevant for the 2025 Digital Decade.

- **Artificial Intelligence**

Germany intends to strengthen its position as a competitive player in the field of AI by establishing AI research centres and supporting the development and application of AI. Germany is currently setting up the Advisory Centre for Artificial Intelligence (*Beratungszentrum für Künstliche Intelligenz*), which will constitute a central point of contact and coordination for AI projects in the federal administration. Other initiatives, such as the cross-departmental AI portal (KIPITZ) and the 'Marketplace for AI Solutions' (MaKI), have also been introduced.

Additionally the European High-Performance Computing (EuroHPC) Joint Undertaking recently selected seven proposals to establish and operate the first AI Factories across Europe, with HammerHAI at the University of Stuttgart being one of them. HammerHAI, and the other six factories, will represent EUR 1.5 bn in investment, funded partly by the Digital Europe Programme and Horizon Europe.

In March this year, additional six AI factory sites were selected, including the JUPITER AI Factory. This factory will contribute to Europe's AI innovation cluster by supporting the development and deployment of AI solutions using Europe's HPC infrastructure to address, in particular, growing industry needs.

Beyond that, Germany aims to increase the use of AI with the Mittelstand-Digital funding priority.[8] The nationwide network of Mittenstand-Digital Innovation hubs, which has been oriented towards AI since June 2024, aims to strengthen SMEs and support digital transformation of SMEs, start-ups and crafts.

Unicorns, scale-ups and start-ups

At the beginning of 2025, Germany had 69 unicorns, which is 2 more than last year (+ 3.0%), solidifying Germany's position as a European leader in the field. Germany has no national target for 2030 and has not indicated any new measures to support this metric in the revised roadmap. In previous years, the Federal Government implemented several start-up measures to provide funding and attract talent, thereby supporting the start-up and scale-up ecosystem.

For instance, in June 2024 the High-Tech Gründerfonds (HTGF) was established, with a total volume of EUR 660 m. The HTGF is a public-private venture capital investment firm designed to invest in tech start-ups. Furthermore, through measures such as the WIN Initiative (Initiative Growth and Innovation

[8] Mittelstand-Digital offers guidance for small and medium-sized enterprises and the skilled crafts as they embrace the digital transformation and informs them about the opportunities and challenges of digitisation.

Capital for Germany), Germany has mobilised additional private capital to support start-ups. The revision of the Federal Immigration Law is also aimed at providing easier and faster access for international talent.

Stakeholders report that there are hurdles to securing late-stage financing. They have also called for several processes to be simplified, such as making stock market listing simpler and fostering cooperation between private actors as well as promoting venture capital. Additionally, stakeholders have reported that the transfer of knowledge from universities was a barrier to the creation of start-ups following scientific research.

The German authorities have reported that they have acted specifically to tackle the administrative burden connected with improving the national business environment. Of particular relevance in this context is the Bureaucracy Relief Act IV *(Bürokratieentlastungsgesetz IV)* of 2024, which should lower the administrative burden for businesses, including SMEs, start-ups and scale-ups, reportedly by EUR 1.3 bn per year[9].

However, a recent report has identified several key issues in Germany affecting the establishment of new enterprises that could reach unicorn status. The report mentions that the costs of complying with national legislation 'have risen strongly since 2021', and that efforts, such as the 2024 Bureaucracy Relief Act IV, *(Bürokratieentlastungsgsetz IV)* of 2024 have provided limited relief and are therefore not reversing the overall upward trend[10]. The report also noted that lengthy and complex administrative procedures have been holding back investment, with 90% of enterprises reporting that bureaucracy and tight regulation constitute a barrier to investment for enterprises, making bureaucracy the most significant obstacle to growth[11].

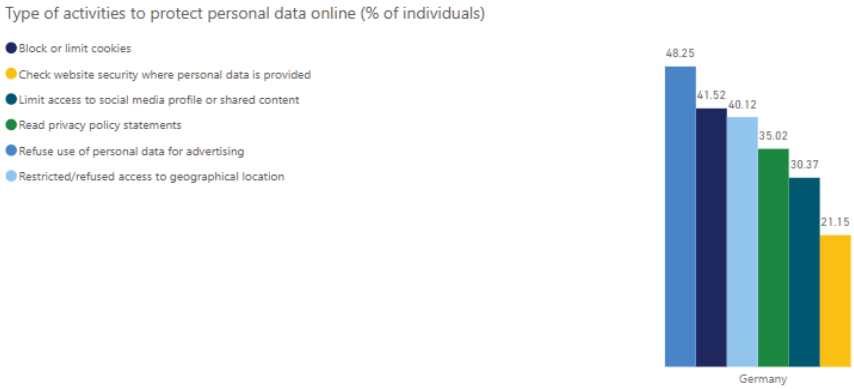
Strengthening Cybersecurity & Resilience

In Germany, 71.03% of individuals took at least one precautionary action to protect their personal data online in 2023, slightly above the EU average of 69.55%. Notably, a moderate share of the population (41.11%) engaged in three or more such actions (and therefore could be considered as having above basic digital safety skills). The most common measure was refusing the use of personal data for advertising purposes, undertaken by 48.25% of individuals, while checking that the website where personal data was provided was secure was the least common, with only 21.15% taking this action.

81% of Germans responded in the Eurobarometer of 2025, that improved cybersecurity, better protection of online data and safety of digital technologies, would significantly facilitate their daily use of digital technologies. This constitutes an increase of two percentage points from the previous year, indicating that Germans are increasingly cognisant around issues related to cybersecurity.

[9] Deutscher Bundestag - Bürokratieentlastungsgesetz IV passiert Bundestag
[10] National Regulatory Control Council, 2024 Annual Report: Jahresbericht 2024.
[11] Ifo, Der Investitionsstandort Deutschland aus Unternehmenssicht.

Germany



German enterprises tend to experience more incidents related to cyberattacks, but employees are also more aware of their ICT security-related obligations compared with the EU average. The proportion of enterprises that experienced ICT security incidents leading to the unavailability of ICT services due to attacks from outside (e.g. ransomware attacks, denial-of-service attacks) decreased slightly in Germany, from 3.88% in 2022 to 3.62% in 2024. However, this proportion remains above the EU average (3.43%). 96.5% of German enterprises deployed some ICT security measures (slightly above the EU average of 92.76%), but only 68.02% of enterprises made their employees aware of their obligations in ICT security-related issues, which is still above the EU average of 59.97%.

Germany is also doing well in the roll-out of Internet Protocol version 6 (IPv6) for end users, coming in second behind France. Concerning the deployment of secure internet standards, Germany's roll-out of IPv6 for end users (62%, compared with the EU average of 36%) is progressing well, and is well above the EU average on the server side (34%, compared with the EU average of 17%). IPv6 is an important protocol as it ensures the scalability, stability, and security of the internet. The deployment of this new version is increasingly urgent, as traditional IPv4 addresses have long been depleted. The Domain Name System Security Extensions is also an important standard to be rolled out, as it introduces security features to the domain name system. German success in this field (79% compared with the EU average of 47%), may be due to **the Federal IPv6 programme,** which helps the federal authorities and organisations to plan, prepare and implement IPv6 in 142 individual migration projects. The programme is also included in the Digital Decade's Best Practice Accelerator, in the 'Business Uptake' cluster.

Additionally, as part of the 'Cybersecurity for SMEs' initiative within Mittelstand-Digital, the "Transfer Centre for Cybersecurity in SMEs" (introduced in 2023 as the successor to the "Transfer Centre of IT Security in SMEs" and scheduled to conclude in 2027, with an option for a two-year extension) continues to play an important role in addressing the threats faced by SMEs and start-ups.

Finally, Germany reported the implementation of the 5G Cybersecurity Toolbox, as proposed by the 2024 country report.

2024 recommendation on cybersecurity: continue efforts in cybersecurity to address evolving threats and strengthen in this regard the collaboration between the state and the industry.
In 2024, Germany continued the implementation of existing measures but did not take any new measures.

Protecting and empowering EU people and society

Empowering people and bringing the digital transformation closer to their needs

The German government is improving on most of the metrics mentioned below. However, Germany faces challenges in digital skills and public services. The country has decided to focus on allowing existing measures to take effect rather than introducing new initiatives.

Germany continues to view several of these metrics in an overarching context. It therefore relies on measures that do not target a single metric specifically, opting instead for a more holistic approach, as illustrated by the ICT specialist target. Although there still is room for improvement, the overall trend continues to be positive for Germany in issues concerning equipping people with basic digital skills, getting more ICT specialists, and e-Health. Especially in the areas of eID and the digitalisation of public services for citizens and businesses, Germany could improve the current situation.

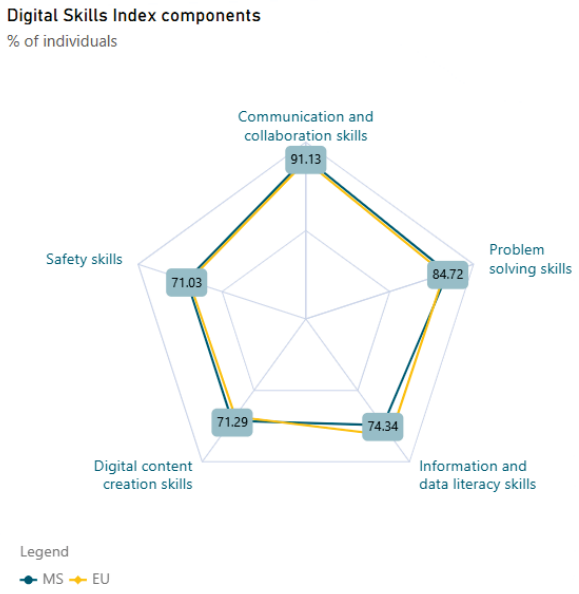
Equipping people with digital skills

Basic Digital Skills

In 2023, just over half of Germany's population (52.22%) had at least basic digital skills, falling short of the EU average (55.56%). Although there's no data for 2024 yet, we can still spot some key areas for improvement by examining different groups within the population.

- **Gender Gap:** A gap exists between men and women in digital skills: 55.14% of men are digitally savvy compared to only 49.30% of women, creating a gap of 5.84 percentage points. This is wider than the EU average of 2.23 percentage points.
- **Education Level:** Among people with high formal education, 72.16% have at least at least basic digital skills, which is below the EU average of 79.83%. Those with no or low formal education are struggling the most, with only 31.76% having at least basic digital skills. The gap between this group and the national average is 20.46 percentage points, close to the EU average gap of 21.95 points.
- **Living Areas:** When it comes to location, rural residents face challenges too. Only 46.65% have at least basic digital skills, slightly lower than the EU rural average of 47.50%. The gap between rural residents and the national average is 5.57 percentage points, which is smaller than the EU average gap of 8.06 points.
- **Age Groups:** Looking at age, those aged 25 to 34 are the most digitally proficient at 63.76%, though still below the EU average of 70.18%. On the other end, the 65 to 74 age group has the least digital skills, with only 32.58%, although this is better than the EU average of 28.19% for that age group.
- **Digital Skills Index Components:** Breaking down the Digital Skills Index into five skill areas, Germany performs better than the EU average in four of them. The standout skill is communication and collaboration, where Germany scores 91.13%, slightly above the EU average of 89.33%. However, safety skills are a weak spot, with a score of 71.03%, just above the EU average of 69.55%.

In summary, while Germany shows strengths in certain digital skills, significant gaps remain, particularly in gender equality, education, rural access, and age disparities. Addressing these weaknesses is essential for boosting overall digital proficiency. According to the 2025 Eurobarometer, when asked how significant human support would be to helping accessing and using digital technologies and services, 78% of Germans responded 'significant', constituting an increase of 5 percentage points from last year. Furthermore, 90% of Germans believed that this policy area ought to be prioritised by the public authorities, underscoring its importance.



Germany's target for basic digital skills for its population remains at 80% in its revised roadmap, which is in line with the EU target. Germany has not introduced additional measures since last year's report, given that existing measures still need to take full effect before they show results.

A cornerstone measure for boosting basic digital skills continues to be the Digital Pact for Schools ('*DigitalPakt Schule*' (DPS)). The pact aims to establish new and better conditions for cooperation between the federal states, school authorities, schools, and private stakeholders. At the 2024 DPS status conference and in the 2023-2024 progress report, all the stakeholders confirmed a new culture of cooperation.

The federal states (*Länder*), as the implementers of the DPS, have regular joint discussions with the representatives of digital educational media providers, and exchanges with the associations of municipal school boards. This is being developed through joint projects of the Länder (*Länderübergreifende Vorhaben* (LÜV)) in the DPS. It is necessary from a pedagogical point of view to integrate solutions developed by digital educational media providers with digital solutions developed by school authorities together with their schools. These projects will therefore create important technical foundations, standards and framework conditions for achieving this integration.

With projects such as VIDIS (Identity Brokerage Service), licence.connect (Licence Brokerage and Management), educheck Digital (Development of a Common Testing Procedure for Digital Educational Media) and MEM (Metadata for Educational Media), central points of reference, basic technologies and support for the seamless integration and use of digital educational solutions from private sector players are created across federal states.

2024 recommendation on basic digital skills: step up cooperation at all levels of administration to boost the digital skills of the population by 2030.
In 2024, Germany continued the implementation of existing measures but did not take any new measures. The country continued to implement measures from its roadmap such as the Digital Pact for Schools. However, no new measure was proposed in the roadmap adjustment.

ICT specialists

Germany's performance in ICT training and ICT specialists shows a mixed picture when compared to the EU average.

In terms of ICT specialists, Germany's total percentage of ICT specialists as a share of total employment was 4.9% in 2023, slightly above the EU's 4.8%. By 2024, this figure rose to 5.3%, compared to the EU's 5.0%. The growth rate for ICT specialists in Germany was 8.2%, significantly higher than the EU's 4.2%. This suggests a robust growth in the ICT specialist sector in Germany.

Regarding the gender distribution among ICT specialists, the percentage of female ICT specialists in Germany was 19.0% in 2023, which is lower than the EU's 19.4%. In 2024, this figure increased to 19.2%, still below the EU's 19.5%.

In 2022, 27.32% of enterprises with 10 or more employees in Germany provided ICT training, surpassing the EU's 22.37%. However, by 2024, this figure decreased to 26.41%, still above the EU's 22.29%. The annual growth rate for enterprises providing ICT training in Germany was -1.7%, which is lower than the EU's -0.2%. This indicates that while Germany has a higher percentage of enterprises offering ICT training, the rate of decline in this area is more pronounced than in the EU.

The amended roadmap for ICT specialists introduces a new target of having ICT specialists make up 5.3% of the total workforce by 2030. This is below the EU-level target of 10%. Since Germany has reportedly already achieved the 5.3% mark, it has met its national target.

Germany has not introduced any new specific measures on ICT specialists in its adjusted roadmap. However, given the EU-wide target of employing 20 million ICT specialists by 2030 (equivalent to 10% of the total workforce), Germany should consider how it will continue to contribute to this target.

Skilled labour shortages is a significant obstacle to economic growth in Germany. Around one third of companies – and 42% of companies in the services sector – reported being affected by labour shortages[12]. Skilled roles in the care and IT sectors, construction, and scientific and technical fields are particularly affected by shortages. The percentage of employers expecting labour shortages to constrain their production, met or surpassed the EU average across all industries during this period[13].

Labour shortages are directly impacting productivity by restricting companies' ability to increase production, and indirectly by encouraging labour hoarding. Labour hoarding might be exacerbated by the extension of short-time work arrangements (*Kurzarbeit*) until the end of 2025. Improved training measures could help employees transition to new sectors, thereby boosting productivity and alleviating labour market tensions.

[12] KfW-ifo Skilled Workers Barometer Juni 2024. Data for Q2 2024.
[13] CEDEFOP-EURES.

Consequently, the labour shortages in Germany extend not only to ICT specialists, but to 183 different professions, as reported by the German authorities. The German Federal Government's Skilled Labour Strategy, published in 2022, aims to address this issue as a whole and was complemented in 2024 by the Skilled Labour Strategy: India, which is expected to yield positive results in attracting ICT specialists to the German market.

2024 recommendation on ICT specialists:(i) increase the attractiveness of STEM disciplines at school to boost the number of young people, including girls and women, interested in taking up ICT-related studies or careers; and (ii) design incentive schemes to attract/retain ICT specialists.

In 2024, Germany *made some efforts to address the recommendation through new policy actions*. Existing measures that focus on STEM education are still in effect. Nevertheless, Germany has not introduced new measures which would 'increase' the attractiveness of these disciplines at school.

Germany's Skilled Labour Strategy, which includes the India sub-branch, is a promising starting point.

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

In 2023, Germany's total score for digital public services for citizens was 75.83, below the EU's 79.44, by 2024, Germany's score improved to 78.94, still behind the EU's 82.32. The country is therefore on track according to its national trajectory. However, Germany's growth rate of 4.1% outpaced the EU's 3.6%. For cross-border digital public services for citizens, Germany scored 63.44 in 2023 and 64.93 in 2024, both below the EU's 68.37 and 71.28, respectively. Additionally, Germany's growth rate of 2.3% fell short of the EU's 4.3%.

In the realm of digital public services for businesses, Germany's total score was 78.58 in 2023 and 77.49 in 2024, both lower than the EU's 85.42 and 86.23, respectively. Germany's growth rate of -1.4% was below the EU's 0.9%. Even so, the country is on track according to its national trajectory. The decline in Germany was due to false positives in the Cross-border Online Availability being corrected this year. For cross-border digital public services for businesses, Germany's scores were 60.62 in 2023 and 55.06 in 2024, significantly below the EU's 73.13 and 73.76.

In contrast, Germany performs well in access to e-health records. In 2023, Germany's score was 86.96, above the EU's 79.12. Although Germany maintained this score in 2024 (2030 target of 100), the EU improved to 82.70. The country is lagging behind compared to its national trajectory.

e-ID

Germany's eID card scheme was notified under the eIDAS Regulation and the country is contributing to the development of an EU Digital Wallet. However, the country's uptake of eID solutions remains relatively low.

According to estimates provided by Bitkom, only 39% of the German population has eID. That percentage is low, considering that eID has been available in Germany since 2010. Of the Germans who have eID, only 22% use it, which suggests that its perceived usefulness is limited, even if more organisations offer eID solutions. Furthermore, Germany has not introduced any new measures in its revised roadmap to address this issue.

Eurostat numbers from 2023 illustrated that Germany was lagging far behind other European countries on several other metrics related to eID usage. Only 9.04% of Germans had used their eID to access online services for private purposes over the previous 12 months, compared with a European

average of 41.11%. This is the second lowest score in the EU. Furthermore, only 6.85% of Germans indicated that they had used their eID to access services provided by public authorities or public services in Germany over the previous 12 months, which is again far behind the European average of 36.14%.

The law amending the Online Access Act (OZG), which came into force on 24 July 2024, aims to boost the further digitalisation of the public administration, especially with regard to its user-friendliness and accessibility. The statutory written and printed forms for applications have thus been replaced by digital processes with online forms and eID-based identification procedures, albeit at low speed. Even though the legislative amendment is a step in the right direction, no data has been provided to demonstrate its effectiveness and there is still room for improvement in the standardisation of the digitalisation process. The importance of the measure is underscored by the 2025 Eurobarometer, where 83% of Germans stated that access to online public services is 'important'. Additionally, 74% of Germans believe that the digitalisation of public and private services simplifies their lives. As such, furthering digitalisation of public services is a central issue for Germans.

Given Germany's potential for improvement, additional measures in this area would be advisable to accelerate the digitalisation of public administration. Additionally, even if Germany were to digitalise a larger part of its public services, the low uptake of eID might also prove a separate challenge for the digital transformation.

Germany is also actively contributing to the development of the European Digital Identity Wallet by participating in all the four large-scale pilots working on various use cases: NOBID, focusing on a large-scale pilot for EU Digital Wallet payments; POTENTIAL, a consortium working on six key use cases and where Germany is the Technical Coordinator, the EU Digital Wallet Consortium (EWC), focused on digital travel credentials; Digital Credentials for Europe (DC4EU) focused on the educational and social security sectors[14]. In addition to several public entities, the private sector, including several banks, is involved in these projects.

Digitalisation of public services for citizens and businesses

Germany has added new targets in its amended roadmap in line with the EU-level target and is committed to achieving 100% digitalisation of public services for citizens by 2030 and for businesses by 2029.

No new measures were introduced in the adjusted roadmap to achieve this goal. The amended Online Access Act (**OZG**) is expected to push for the further digitalisation of public services and will presumably help achieve the targets. However**,** given the overall progress of the digitalisation of public services in Germany, it might be relevant to gauge whether the amended law will be enough to close the gap to the rest of EU, reach the stated target and allow for fully digitalised and effective public services, which include both front-end and back-end digitalisation.

At a federal level (*föderales Programm*) the most relevant public services were reported to have been developed according to the once-only principle (*Einer-für-Alle*) at state level. As such, the most relevant public services developed at the state level can be used by authorities at the municipal level. As part of the Recovery and Resilience Facility (RRF), Germany has made 215 services available online at federal or state (*Länder*) level. Studies have, however, criticised the implementation as being too

[14] What are the Large Scale Pilot Projects - EU Digital Identity Wallet.

slow: at the current rate, it will take 10 years to move all services online[15] and many digital solutions are used by only one federal state or municipality (*Kommune*)[16].

Low usage and interoperability of digital public services remain key challenges. Similar to the very low eID uptake, Germans are also among the least likely in Europe to use the internet to interact with public authorities (63.90% compared with 74.71% at EU level). Furthermore, data registers in Germany are of low quality and are poorly connected[17]. As a result, Germans have significantly fewer pre-filled forms (measured as the proportion of administrative steps that provide users with pre-filled data online) at their disposal than other Europeans. With a score of 38 compared with 71, Germany has the second lowest score in the EU. Moreover, Germany also scores poorly (49 compared with 69 at EU level) in the transparency of service delivery, design and personal data.

2024 recommendation on digital public services for citizens and for businesses: accelerate the digitalisation of public services for citizens and businesses.

In 2024, Germany continued the implementation of existing measures but did not take any new measure.

Germany is currently implementing the Online Access Act (OZG), which is a central cornerstone of the digitalisation of public services for citizens and businesses. Germany did not launch any significant new measures.

e-Health

Germany maintains its target in its amended roadmap for access to e-Health records. However, Germany's current progress indicates that it is lagging behind its national trajectory.

Germany's revised roadmap still includes the Act on Accelerating the Digitalisation of Health (*Digital-Gesetz* (DigiG)), which requires healthcare providers to transfer certain types of data into the centralised e-Health records (*elektronische Patientenakte* (ePA)). All citizens with statutory health insurance, who did not opt-out, have been equipped with an ePA.

With regard to the onboarding of more healthcare providers, the group of German healthcare providers that are authorised to access the e-Health records, as well as the scope of their processing rights, will be gradually extended in several steps. The number of patients who access their health data through their ePA is reportedly also increasing.

Once the DigiG becomes available nationwide, it will initially a selection of healthcare providers to use and fill in the electronic health records as part of medical care.

A majority of healthcare professionals are already connected to the nationwide infrastructure. Following an initial regional testing, the nationwide rollout of the necessary software module for service providers' information systems began at the end of April. The use of electronic health records by healthcare providers will become compulsory from 1 October 2025.

By July 2025, both outpatient and inpatient care facilities will have to meet all the requirements to access the ePA as part of nursing care.

[15] BMWE, 2024, Digitalisierungsindex.
[16] Bundesrechnungshof, 2024, Bericht zur Umsetzung des Onlinezugangsgesetzes.
[17] National Regulatory Control Council, 2024, Annual Report: Jahresbericht 2024.

There are currently no statutory deadlines for other healthcare provider groups not included in the legal act to connect to – or use – the e-Health records.

2024 recommendation e-Health: (i) Ensure that all data types are made available in a timely manner. (ii) Increase the supply of health data by onboarding more categories of healthcare providers.
Germany made some efforts to address the recommendation through new policy actions in 2024. (i) In Germany, all data categories in this framework are made available to individuals. However, only data in the 'identification', 'e-Prescriptions' and 'e-Dispensations' categories are made available in a timely manner. (ii) Only a limited range of categories of healthcare providers supply health data (i.e. public primary and secondary/tertiary care providers, public mental health facilities, and pharmacies). Providers outside of the statutory health insurance system can join voluntarily, but they are not obliged to do so.

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

Germany shows a positive trend concerning online participation in both political and civic matters. In 2022, only 4.37% of the population reported taking part in online consultations or voting to decide civic or political issues. Although that percentage was well below the EU average of 8.41%, it increased to 10.88% by 2024, thereby surpassing the EU average of 10.05% in the same year. An increase was also seen in the use of the internet for expressing civic or political issues, either on websites or in social media. However, in this metric too, Germany was far behind the EU average in 2022. 6.60% of respondents reported that they engaged in such internet use, which was much lower than the EU average of 14.30%. By 2024, the German percentage had increased to 15.51%, which was only slightly below the EU average of 16.68%.

The country is a target of disinformation, especially during federal and state elections, as illustrated by reports of Russian influence in the 2025 Bundestag election[18].

Meanwhile, in 2023, 25.42% of German individuals encountered hostile or degrading online messages targeting groups on the basis of factors such as racial origin or political views. This was significantly below the EU average of 33.5%. Young people (16-24) (34.11%) reported encountering such messages at rates similar to adults (25-64) (26.88%). Men (27.17%) and women (23.69%) also had similar rates of exposure to such messages**.** Germany's overall rate remained among the lowest in the EU, with small differences across age groups and genders.

In 2023, 44.78% of individuals in Germany reported having encountered information or content on internet news sites or social media that they perceived as untrue or doubtful, which was slightly below the EU average of 49.25%. Of those who encountered such content, only 19.84% checked its truthfulness. Young people (16-24) (51.79%) and adults (25-64) (47.81%) reported similar exposure rates, with verification rates also being comparable, at 24.1% for young people and 21.24% for adults. Men (48.86%) reported higher exposure than women (40.71%) and they were also more likely (23.29%) to verify the truthfulness of the information than women (16.40%).

[18] Russia-linked fake videos spread German election fraud claims, authorities warn – POLITICO.

Also worthy of note is the initiative 'LOOK! How your child uses media' (*SCHAU HIN! Was Dein Kind mit Medien macht*). This initiative supports parents and educators with practical, age-appropriate, and up-to-date recommendations for children's media usage. It provides an overview of the benefits and risks of information and entertainment. The programme has several methods of communication, and as of March 2025, its Instagram channel had tripled the number of followers it had at the end of 2022. The project also has three newsletters, which have a total of 80 000 subscribers, an increase of approximately 45% since the end of 2022. The project is a part of the Digital Decade's Best Practice Accelerator.

It is evident that the 'LOOK! How you child uses media' initiative resonates with the German populace. According to the 2025 Eurobarometer, 95 % of Germans considered the issue of social media's negative impact on children's health to be 'urgent'. Similar concerns were expressed regarding the urgency of cyberbullying and online harassment, as well as the issue of implementing age assurance mechanisms to restrict age-inappropriate content, with 93% of Germans viewing both these issues as 'urgent'.

Additionally, 79% of Germans believe that it is 'important' that the public authorities prioritise actions which will ensure that the development of AI and new digital technologies respect their rights and values.

Leveraging digital transformation for a smart greening

Germany continues to prioritise the green and digital twin transition. Some measures have been taken at federal and state levels and continue to be implemented.

The German population is also ahead on several metrics compared with the EU average. In 2024, 15.90% of Germans reported recycling an old desktop computer, compared with the EU average of 14.66%. Similarly, Germans recycle 11.15% of their phones and 12.91% of their laptops/tablets, which slightly exceeds the EU averages of 10.93% and 11.31% respectively. Although Germany contributes to raising the EU average, the number of people who recycle IT equipment remains low overall.

The Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN) has highlighted its Stakeholder-Community, which promotes sustainable practices in the digital transformation of industry. The initiative has organised six workshop sessions on green coding, with approximately 100 participants attending each virtual workshop. The project will organise a new workshop series with civil society organisations in 2025. The workshop series will provide knowledge about source soft- and hardware solutions, community-based social media platforms and green digital technologies.

When asked how important Germans thought digital technologies will be to help fight climate change by 2023, 70% viewed it as 'important', while 25% marked it as 'not important'. This reflects a more negative attitude than the European average, where 74% viewed it as 'important', with 22% noting it as 'not important'. Even so, 89% of Germans believe this policy area should be 'important' for the public authorities.

2024 recommendation leveraging digital transformation for a smart greening:

Continue developing a coherent approach to twinning the digital and green transitions.

First, continue promoting improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, continue supporting 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.

Demonstrate leadership and continue monitoring and quantifying 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.

Share its experience in developing resource-efficient AI technologies and its best practice in using AI to increase resource efficiency and material savings.

In 2024, Germany continued the implementation of existing measures but did not take any new measure. Germany continued to implement measures.

Annex I – National roadmap analysis

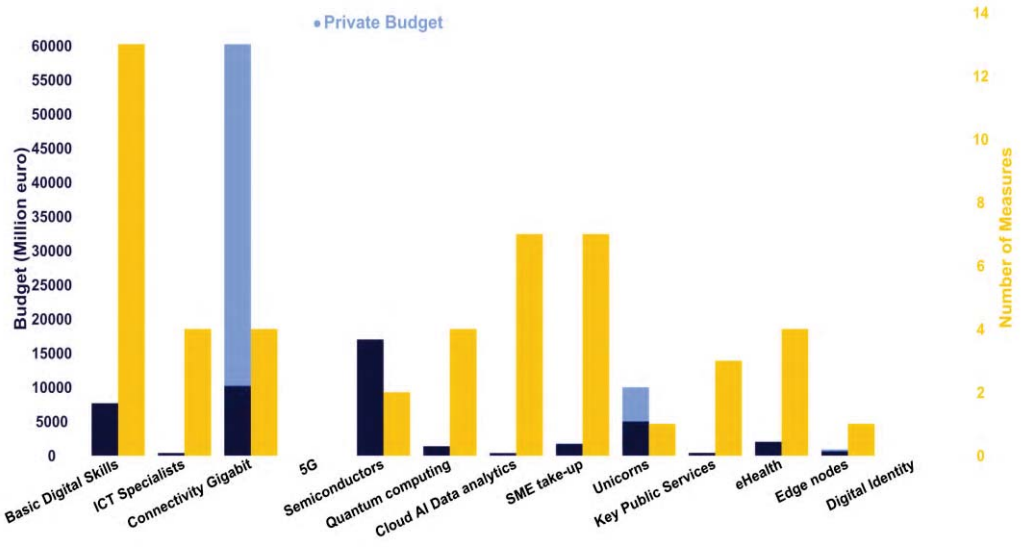
Germany's national Digital Decade strategic roadmap

Germany submitted a revised national Digital Decade roadmap on 21 December 2024, which addresses a limited number of the roadmap recommendations issued in 2024.

Germany adjusted a limited number of measures, especially in the area of gigabit connectivity and AI. It made changes to the measures' budgets and added one new measure to establish hubs for quantum computing. For other areas, Germany argued that in due time the existing measures would prove sufficient to achieve the national targets. New targets for ICT specialists (below the EU-level target) and for digital public services for citizens and businesses (in line with the EU-level target) were introduced. The revised roadmap includes stakeholder consultation.

The amended roadmap points out that several measures that were added before May 2024 are still being implemented and should be allowed to take full effect and show results before new ones are added. This approach is logically sound insofar as it concerns targets where Germany is already ahead – or close to – the EU average. However, in certain areas where Germany falls behind the EU average, and where the number and scope of measures introduced remain limited, such an approach seems overly optimistic. Specific examples of this concern efforts in the areas of basic digital skills and ICT specialists.

Measures and budget in national roadmap[19]



[19] 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.

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

Multi-country projects and best practices

Germany is working towards setting up a European Digital Infrastructure Consortium in the area of digital commons. Germany is directly participating in the IPCEI on Microelectronics and Communication Technologies (IPCEI-ME/CT) and in the IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS). Germany is also a participating state in the EuroHPC Joint Undertaking (JU) and of the Chips JU[20].

Germany has contributed to the Best Practice Accelerator[21], adding several best practices in the 'Digital Skills' and 'Business Uptake' clusters.

In the 'Digital Skills' cluster, Germany provided nine best practices.

1. AI Studios of the AI Observatory – AI workshops for the participatory design of AI applications in business practice.
2. Advisory Centre for Artificial Intelligence (BeKI).
3. KIPITZ for the Federal Administration.
4. The Association for Media Education and Communication Culture.
5. Digital Pact for Older People (*DigitalPakt Alter*).
6. LOOK! How your Child uses media.
7. Teenage Internetwork Conference.
8. German common digital educational media infrastructure.

In the 'Business Uptake' cluster, two best practices were added.

1. The AI Opportunity Market (MaKi).
2. The Federal IPv6 Programme.

EU funding for digital policies in Germany

Germany allocates 48% of its total recovery and resilience plan to digital (EUR 13.3 billion)[22]. In addition, under cohesion policy, EUR 2.2 billion (representing 11% of the country's total cohesion policy funding), is dedicated to advancing Germany's digital transformation[23]. According to JRC

[20] Corrigendum to the Digital Decade Country Report Germany 2024: Germany is not a member of the Local Digital Twins towards the CitiVERSE EDIC.

[21] 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.

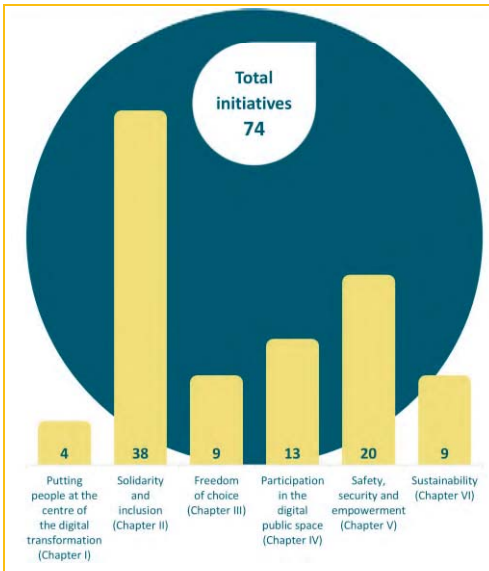
[22] The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation. Last data update: 16 May 2025.

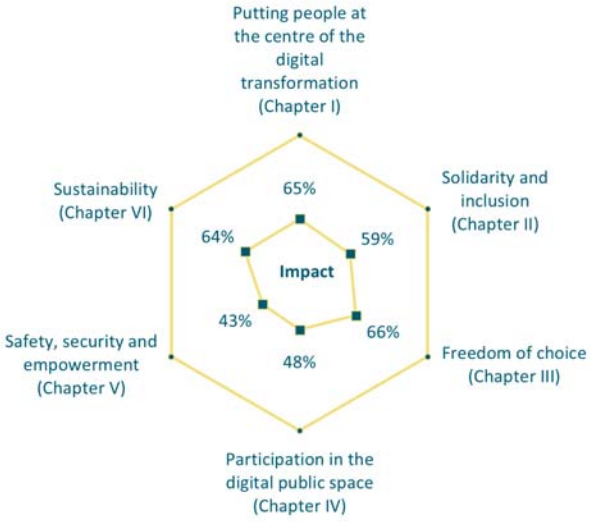
[23] This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 Cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition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

estimates, EUR 13.1 billion directly contribute to achieving Digital Decade targets (of which EUR 12 billion comes from the RRF and EUR 1.1 billion from cohesion policy funding)[24]. The largest amounts are dedicated to the digitalisation of key public services, while followed by the modernisation of hospitals and the IPCEI on microelectronics as well as action on basic digital skills. The second payment request was disbursed to Germany in December 2024. So far, the country received EUR 19.8 billion in RRF grants and loans.

[24] 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[25]





Activity on Digital Rights and Principles (Figure 1)

Germany has been relatively active in implementing digital rights and principles, with 74 initiatives overall and 3 new initiatives launched in 2024, showing limited progress towards its commitments. **Germany is most active in the area of Digital education, training and skills** (II). There is room for improvement, especially with regards to Putting people at the centre of the digital transformation (I) 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 Germany (mainly national government) and how these are perceived by citizens.

The indicators suggest that **Germany is most successful in implementing commitments related to Freedom of choice** (III). Germany should review and strengthen efforts in areas where the impact of digital rights initiatives appears to be limited despite relative activity, notably on Safety, security and empowerment (V).

According to the Special Eurobarometer 'Digital Decade 2025', **38% of citizens in Germany think that the EU protects their digital rights well** (a 3% decrease since 2024). This is below the EU average of 44%. Citizens are particularly confident about getting more freedom of expression and information online (54%, below the EU average of 60%). They are most worried that their right to a safe digital environment and content for children and young people is not well protected (52%, above the EU average of 48%).

[25] 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.