Digital Decade
Country Report 2024:

France

France

Contents

Executive summary

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

In 2023, France made notable **progress** in **e-health** and rolling out its **fibre network**. However, **important challenges** persist in the **digitalisation of SMEs** and the **adoption of advanced technologies** (such as AI and cloud) by enterprises.

Digitalisation is a priority for the French authorities with an emphasis on infrastructure and research and development (R&D) in key technologies. Under its investment plan 'France 2030', France is investing massively in research and innovation in new technologies such as cloud, cybersecurity, Artificial Intelligence (AI), and quantum. The production of semiconductors on the national territory is also given a top priority. France also benefits from robust digital infrastructures. Although its digitalisation policies cover a broad range of areas, there is scope to improve several metrics related to the general population of citizens and enterprises. According to the **special Eurobarometer survey on the 'Digital Decade 2024'[1]**, only 64% of the French population consider that the digitalisation of daily public and private services makes their life easier, one of the lowest scores in the EU.

France is hosting the **European Digital Infrastructure Consortium** (EDIC) ALT-EDIC (already set up), which addresses the scarcity of European language data needed for AI solutions, and is candidate to host two more EDICs, both in the making: Agrifood EDIC and (along with The Netherlands) and Digital Commons EDIC. France is also a member of the Local Digital Twins towards the CitiVERSE EDIC (already set up). In addition, France is developing the Statute of the possible future Mobility and Logistics Data EDIC and the Genome EDIC[2].

France allocates 21.6% of its total Recovery and Resilience plan to digital (EUR 8.1 billion)[3] with the priorities given to e-Health and R&D in key technologies (5G, quantum, and cloud). Under Cohesion Policy, an additional EUR 1.9 billion (11% of the country's total Cohesion Policy funding) is allocated to the country's digital transformation[4].

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[1] Special Eurobarometer 551 on 'the Digital Decade' 2024: https://digital-strategy.ec.europa.eu/en/news-redirect/833351
[2] Information last updated on 31 May 2024.
[3] The share of financial allocations that contribute to digital objectives has been calculated using Annex VII to the Recovery and Resilience Facility Regulation.
[4] This amount includes all investment specifically aimed at or substantially contributing to digital transformation in the 2021-2027 cohesion policy programming period. The source funds are the European Regional Development Fund, the Cohesion Fund, the European Social Fund Plus, and the Just Transition Fund.

France

Digital Decade KPI [1]	France			EU		Digital Decade target by 2030	
	DESI 2023	DESI 2024	Annual progress	DESI 2024 (year 2023)	Annual progress	FR	EU
Fixed Very High-Capacity Network (VHCN)	73.4%	81.4%	10.9%	78.8%	7.4%	100%	100%
Fibre to the Premises (FTTP) coverage	73.4%	81.4%	10.9%	64.0%	13.5%	x	-
Overall 5G coverage	88.8%	93.2%	4.9%	89.3%	9.8%	100%	100%
Semiconductors		NA					
Edge Nodes		257		1 186		x	10 000
SMEs with at least a basic level of digital intensity	47.0%	52.0%	[2]	57.7%	2.6%	90%	90%
Cloud	25.3%	22.9%	[2]	38.9%	7.0%	53.3%	75%
Artificial Intelligence	6.7%	5.9%	[2]	8.0%	2.6%	46.7%	75%
Data analytics	NA	33.9%	NA	33.2%	NA	49.7%	75%
AI or Cloud or Data analytics	NA	44.9%	NA	54.6%	NA		75%
Unicorns		40		263		100	500
At least basic digital skills	62.0%	59.7%	-1.9%	55.6%	1.5%	80%	80%
ICT specialists	4.3%	4.7%	9.3%	4.8%	4.3%	10%	~10%
e ID scheme notification		Yes					
Digital public services for citizens	71.3	72.1	1.1%	79.4	3.1%	100	100
Digital public services for businesses	79.3	79.3	0.0%	85.4	2.0%	100	100
Access to e-Health records	54.5	79.3	45.5%	79.1	10.6%	100	100

[1] See the methodological note for the description of the indicators and other descriptive metrics
[2] Comparison with previous years cannot be done for France due to methodological changes.

National digital decade strategic roadmap

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

Overall, France's roadmap is ambitious and consistent including on objectives but with some weaknesses in the digitalisation of enterprises. France's national roadmap includes 2030 targets for all KPIs except for **FTTP and edge nodes** (the former is assumed to be similar to VHCN but needs formalisation). In total, 9 national targets are aligned with EU 2030 targets, but 3 are below: **take up of AI**, **take up of data analytics** and **take up of cloud**. Trajectories are missing for **FTTP, edge nodes** and **unicorns**. The roadmap covers all objectives of the Digital Decade such as a human-centred digital space, resilience and security, sovereignty, green, and protection of the society with a high level of ambition, especially on the human centred digital space, on sovereignty, and on the green transition.

The total budget of the measures (public and private) presented in the roadmap **is estimated to EUR 17.8 billion** (about 0.6% of GDP) with the priorities being semiconductors, connectivity, and e-Health. Some aspects require more action, especially regarding ICT specialists to double the current number of ICT professionals and for the digitalisation of enterprises (both in terms of basic digital intensity and the rate of adoption of advanced technologies).

France

Digital rights and principles

The Special Eurobarometer 'Digital Decade 2024' provides insights into French perceptions of digital rights. Although 39% of French respondents believe the EU protects their digital rights effectively, this marks a decrease and is below the EU average of 47%. Concerns have intensified, with 52% worried about children's online safety and 45% about control over personal data, reflecting growing unease. On a positive note, 85% value digital technologies for connecting with friends and family, and 82% for accessing public services, indicating strong appreciation for digital advancements. The monitoring of the Declaration on Digital Rights and Principles shows that increasing the profile of the Declaration at national level and fostering better stakeholder engagement could help improve outcomes in the years to come[5].

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

To underpin its technological leadership and competitiveness, France is equipped with good infrastructures with a positive deployment dynamic but should boost the digitalisation of its businesses. On infrastructures, France is on track to reach 100% coverage for VHCN (+3.5 million fibre connections in 2023) and 5G for 2025, 5 years earlier than the EU target. France shows the highest share of fixed broadband subscriptions with speed > 1 Gbps in the EU with 51.6%. This is mainly due to the successful roll-out of the fast broadband plan 'France très haut débit', the choice of FTTH as the leading technology, and the French appetite for high-speed broadband. 5G coverage stands at 93.2% with 64.8% of French households covered by the 3.4-3.8 GHz band, an essential band for enabling advanced applications requiring large spectrum bandwidth. Several calls for projects were launched to develop industrial 5G and the 26GHz band has been open since 2019 for experimentation purposes. However, the indicators on the digitalisation of enterprises (basic intensity of SMEs and take-up of data analytics, AI, and cloud) all point to a performance below the EU average. Although France hosts some innovative frontrunners (including dynamic start-ups), as a whole, the global business sector

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

underperforms on digitalisation. France has made digital sovereignty a priority by, for example, increasing the production of semiconductors and is developing sovereign solutions in AI, cloud, quantum, and cybersecurity. On AI, a national commission recently released a report guiding the future actions of the government. The national cybersecurity strategy will be updated in 2024 with a focus on skills.

> **Recommendations – France should:**
>
> - **CONNECTIVITY INFRASTRUCTURE**: Ensure sufficient access of new players to spectrum for innovative business-to-business (B2B) and business-to-consumer (B2C) applications and encourage operators to speed up the deployment of 5G stand-alone core networks.
> - **CYBERSECURITY:** (i) Continue efforts in cybersecurity to address evolving threats and restore the confidence of enterprises and general public; (ii) Continue the implementation of the 5G Cybersecurity Toolbox to ensure secure and resilient 5G networks.
> - **SMEs:** Set up additional measures and increase resources for existing schemes to improve the SMEs digitalisation performance and to further leverage the impact of the European Digital Innovation Hub in regions and its close presence to regional ecosystems, paying special attention to its outermost regions.
> - **AI/CLOUD/DATA ANALYTICS/EDGE NODES:**
>   - (i) Review the mix of measures to support the adoption of advanced digital technologies (with a particular attention to AI and cloud). Foster the creation of local ecosystems to allow technologies (AI, cloud, data analytics) and best practices to diffuse across the broader business sector. Build on the recent national AI Commission report to design new measures to develop the AI ecosystem and foster related technologies adoption by enterprises.
>   - (ii) Ensure the broad uptake of the next generation of cloud infrastructure and services under development in the IPCEI-CIS by companies of all sizes, including by developing a country-specific dissemination strategy (complementing what has already been committed under IPCEI-CIS); contributing to the additional dissemination activities led by the Cloud IPCEI Exploitation Office.
>   - (iii) Consider measures specific to edge nodes deployment, supplementary to the IPCEI-CIS participation.

Protecting and empowering EU people and society

France is well equipped to deliver an inclusive digital transition, but it will require sustained efforts to continuously increase the level of digital skills of the population and train ICT specialists. The level of digital skills of the population is still slightly above the EU average, with a slight decrease compared to last year's report, possibly due to post-COVID-19 effects (i.e., lower usage of ICT tools). Over the last years, France has integrated digital skills in curricula at different stage. In 2023 it also announced measures to strengthen the basic education (especially in mathematics) and boost the attractiveness of science, technology, engineering, and mathematics (STEM). This could increase the number of young people embarking on a digital career in the future. The proportion of ICT specialists (4.7%) in employment is broadly in line with the EU average and in strong progress. However, it will require sustained action to reach the EU and national Digital Decade targets given the relatively slow change

in population indicators. The digitalisation of public services will require acceleration as France is slightly below the EU average. France improved its overall e-Health maturity score from 54.5 in 2022 to 79.3 in 2023. In February 2024, the authorities launched 'France Identité', a companion application enabling e-ID users to authenticate and access digital ID services. France has a long history of prioritising inclusiveness in designing policies. Digitalisation is current practice with measures in place to narrow the geographical divides and the gender gap and to reduce digital illiteracy.

Recommendations – France should:

- **BASIC DIGITAL SKILLS:** Take measures to boost the digital skills of the population on the shorter term, with additional efforts in its outermost regions.
- **ICT SPECIALISTS:** (i) Increase the attractiveness of STEM disciplines at school to boost the number of young people, including girls, interested in taking up ICT-related studies or careers; (ii) Increase the visibility and readability of training and reskilling options. Design incentive schemes to attract and retain ICT specialists.
- **KEY DIGITAL PUBLIC SERVICES:** Make efforts to digitalise public services, with particular attention to re-use of information available to public administrations and user support.
- **E-HEALTH:** (i) Make all data types available to citizens through the online access service; (ii) Enhance the authentication method for logging in to the online access service by using a (pre)notified e-ID; (iii) Introduce a legal basis and provide the technical functionality for authorised persons to access electronic health data on behalf of others.

Leveraging digital transformation for a smart greening

France emerges as an EU leader in its ability to create links between the digital and green transitions. It is at the forefront in monitoring the footprint of the ICT sector and in promoting energy sobriety and the eco-design of ICT equipment and services. During the French presidency of the EU, France drafted a joint declaration on the dual digital and environmental transition, signed by 22 Member States.

Recommendations - France should:

- Develop a coherent approach to twinning the digital and green transitions. First, promote improvements in energy and material efficiency of digital infrastructures, in particular data centres. Second, support the development and deployment of digital solutions that reduce the carbon footprint in other sectors, such as energy, transport, buildings, and agriculture, including the uptake of such solutions by SMEs.
- 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.

A competitive, sovereign and resilient EU based on technological leadership

France aims to regain competitiveness by investing in key technologies, notably through the France 2030 investment plan. In particular, the plan aims to support the digital transition for the next decade. It should enable France to catch up with the industrial delays it accrued in the early 2000s when it lost significant market shares and its competitiveness decreased. The investment plan should also enable France to recover from the COVID-19 and Ukraine crises and prepare the country for future challenges. With a EUR 54 billion budget, the France 2030 plan will invest in several areas including innovative digital technologies such as semiconductors, AI and cloud and should cover both R&D and training.

France is equipped with good digital infrastructure, a dynamic start-up ecosystem and substantial supports to R&D&I in digital. The country also invests massively in semiconductors. However, its performance is weaker in terms of business take-up, as the metrics tracking the digitalisation of SMEs and the take-up of technologies are sub-par. It is essential for France to foster the digitalisation of its whole business sector (not only the front runners) including SMEs in order to boost its competitiveness. The digitalisation of businesses can lead to productivity gains lowering production costs, by raising the quality of tech-intensive goods or by providing new ICT services that could eventually improve the non-cost competitiveness of the country.[6]

Building technological leadership: digital infrastructure and technologies

France is very active in rolling out connectivity infrastructures. Both fibre and 5G networks are expected to reach 100% coverage by 2025, narrowing the geographical divides in a large territory with sizeable rural areas.

[6] *Can We Evaluate the Non-Price Competitiveness of French Products Based on Export Data?* J.Burton, M.Kizior, Directorate-General for Economic and Financial affairs. Economic Brief 064, 2021

France

Connectivity infrastructure (Gigabit)[7]

Very High Capacity Network (VHCN)
% of households
● FORECAST ● HISTORICAL ● EU historical and ideal trajectory ● EU 2030 target

Bar values: 43.8, 52.6, 63.4, 73.4, 73.3, 86.6, 100.0, 100.0, 100.0, 100.0, 100.0, 100.0

Note: The source of national forecast values is the 2023 country roadmap

Commitment level
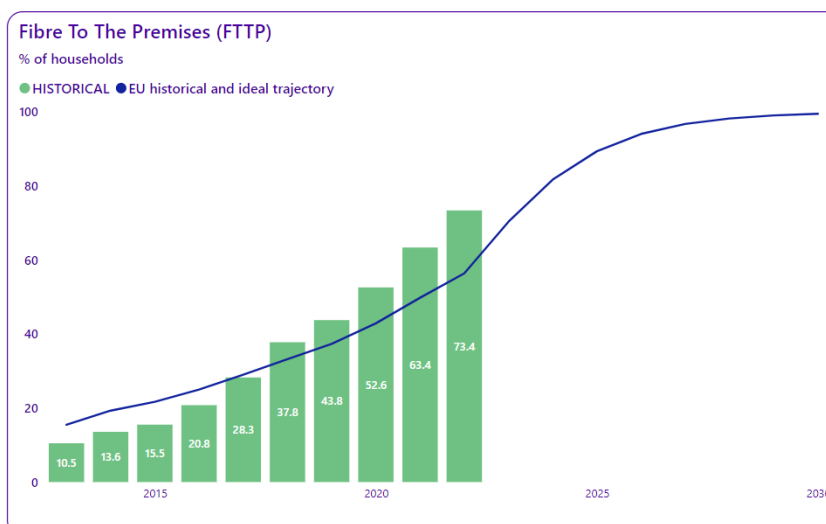2030 national vs EU target

0   **100.0**   100
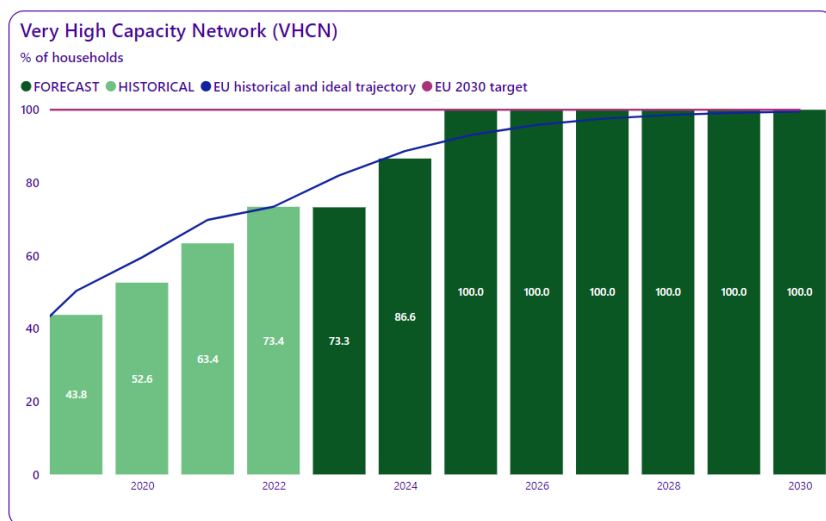
2023 state of play and recent progress

	Country level	EU level
FORECAST	73.3	82.0
DESI 2024	81.4	78.8
AVERAGE ANNUAL GROWTH %	10.9	7.4

Average, annual growth is computed between the two most recent available data points

Fibre To The Premises (FTTP)
% of households
● HISTORICAL ● EU historical and ideal trajectory

Bar values: 10.5, 13.6, 15.5, 20.8, 28.3, 37.8, 43.8, 52.6, 63.4, 73.4

Note: The source of national forecast values is the 2023 country roadmap

Commitment level
2030 national vs EU target

0   100

2023 state of play and recent progress

	Country level	EU level
FORECAST		70.3
DESI 2024	81.4	64.0
AVERAGE ANNUAL GROWTH %	10.9	13.5

Average, annual growth is computed between the two most recent available data points

France brings a positive contribution to the EU's Digital Decade target for Very High-Capacity Networks (VHCN) and maintains a very strong dynamic. On Fibre-to-the-premises (FTTP), France brings also a very strong contribution to the EU's Digital Decade target and shows positive dynamic. Fibre networks have completely overbuilt the cable networks. Both VHCN and FTTP figures are at 81.4% of households' coverage (i.e., FTTP being the leading and nearly only technology, and DOCSIS 3.1 coverage is neglectable) and new deployments focus on fibre. VHCN and FTTP coverages are both above the EU average with the FTTP coverage particularly high (81.4%) compared to the EU average (64.0%). The pace of VHCN and FTTP deployment has reached double-digit annual growth rates. VHCN coverage in rural areas (64.6%) is also above the EU average (55.6%). France shows the highest share of fixed broadband (> 1 Gbps) subscriptions in the EU at 51.6%.

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[7] All historical values presented in the figures are sourced from the corresponding data sources and not the national roadmaps.

France aims at reaching 100% fibre coverage by 2025, much earlier than the EU target of 2030. The 2025 objective was set in the plan *France très haut débit* aiming at covering the entire territory with FTTP. This will automatically allow achieving the 100% VHCN coverage target before 2030. The current level of coverage indicates that this target can be considered realistic. However, the last deployments might prove more difficult to achieve by nature.

The plan 'France très haut débit' is a successful tool to roll out fibre in the entire territory. The progress of the plan was sustained in the recent years, achieving concrete results on the ground and often surpassing previsions. For example, in 2021 and 2022, 10.3 million new premisses were eligible to fibre. In 2023, 3.5 million new premisses were eligible to fibre nationwide. This plan benefits from EUR 240 million funding from the Recovery and Resilience Facility which allowed France to review upwards the initial ambitions of the plan to the generalisation of fibre networks even in the most remote areas.

Last difficult connections and unexpected costs might delay the achievement of the full fibre coverage. In particular, some areas in densely populated cities (private initiative zones) encounter obstacles linked for example to security in high criminality areas. Other remaining bottlenecks identified touched upon heritage protection or environmental issues. Also, the outermost regions require particular attention. Some premises turned out to be more expensive to be made eligible to fibre than expected, which required additional private and public funding. The State of the Digital Decade report 2023 recommended France to continue its efforts in implementing its policies on digital infrastructures. While the policy actions are still in force, the last observed developments (difficult areas, regulatory friction, need of marginal public funding…) might require monitoring.

Market dynamics can be considered healthy. The four main telecom operators are present in most of the territory (83% of premises covered by at least 4 operators, 95% by 3, by the end of 2023), providing fibre connexions at affordable prices through market competition. The take-up of fibre is very dynamic with 3.3 million new users in the past year, representing now 66% of total Internet subscriptions by the end of 2023.

Despite its large territory and diverse geography, France is in a favourable position to achieve full fibre VHCN coverage within the Digital Decade horizon. The plan 'France très haut débit' proved to be an efficient measure, but the finalization will require monitoring the last deployments and providing sufficient budget.

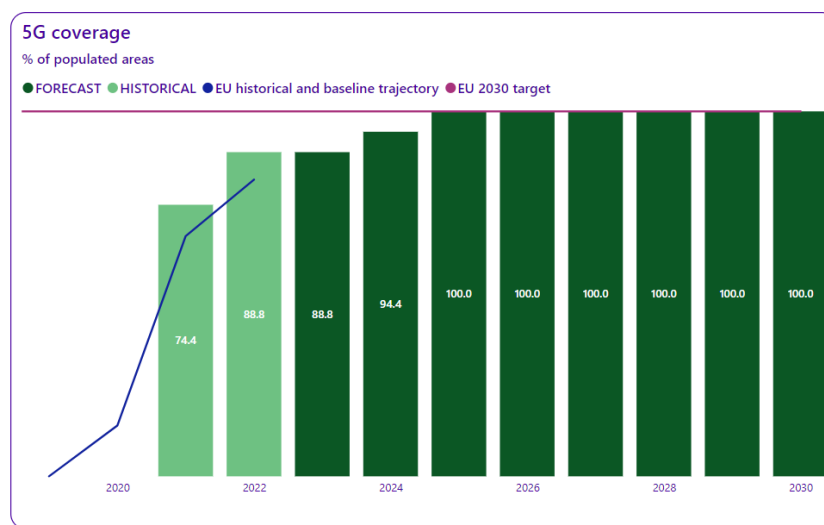**Best practice: turning the page of the copper network**

The massive roll-out of the fibre network enables the incumbent operator Orange to decommission its copper network. ARCEP, the French telecom national regulatory authority, oversees the switch from copper to the fibre network. ARCEP and Orange agreed on a switch-off plan that ARCEP then made binding. This plan provides for the complete switch-off of the copper-based network by 2030. Such technological shift requires accompanying the population through this transition as it implies new technological habits and may lead to changes in the price of the service. Consequently, several actions and conditions were envisaged to allow a smooth transition:

- Planning: the closure is planned by areas with a monitoring and a 'lessons learned' process carried out after each closure project to improve the process of the following closures.

- Transparency: the incumbent operator has the obligation to respect notice periods and publish the progress of the works.

- Replacement solution: ensuring that a replacement fibre connection is available to everyone before starting the closure.
- Social fares: several operators committed to maintaining social fares to ease the switch to fibre (that is often more expensive than cable). The operators kept the option of only subscribing to a fixed phone contract (no bundling).
- Accompanying: communication efforts include dedicated websites and the involvement of counsellors (*France Services*), mainly deployed in rural areas.

Sustainability: the copper and other materials will be recovered and recycled. Also, a fibre subscription consumes four times less electricity than a copper connection.

Connectivity infrastructure (5G)

5G coverage
% of populated areas
● FORECAST ● HISTORICAL ● EU historical and baseline trajectory ● EU 2030 target

74.4	88.8	88.8	94.4	100.0	100.0	100.0	100.0	100.0	100.0

2020　2022　2024　2026　2028　2030

Commitment level
2030 national vs EU target

0　100.0　100

2023 state of play and recent progress

	Country level	EU level
FORECAST	88.8	
DESI 2024	93.2	89.3
AVERAGE ANNUAL GROWTH %	4.9	9.8

Average, annual growth is computed between the two most recent available data points. No ideal trajectory, and therefore no EU level forecast, is provided for 5G (see 2023 Communication on EU-level trajectories)

Note: The source of national forecast values is the 2023 country roadmap

France brings a positive contribution to the EU's Digital Decade target for 5G while demonstrating limited dynamic. 5G coverage in France (93.2%) is above the EU average (89.3%). The deployment is sustained (+4.9% annual growth) but below the observed very high dynamics in the EU (+9.8% annual growth). Also, 64.8% of French households are covered by 5G in the 3.4-3.8 GHz band, an essential band for enabling advanced applications requiring large spectrum bandwidth, which is above the EU average (50.6%).

The four main operators are actively rolling out 5G in the 3.4-3.8 GHz band. In total, around 5100 sites gained coverage in that band by the end of 2023 with a target of 8000 by the end of 2024. However, they have different presence in the 700-800 MHz and the 1.8-2.1 GHz bands. As of 1 January 2024, 43 134 sites implementing 5G technology had been authorised for a total of 66 562 mobile network sites in France, all generations combined.

The public 3.4-3.8 GHz band is also used for industrial 5G applications. However, only 59.2% of the 5G pioneer bands are assigned, against 73.4% at the EU level. The 26 GHz band is only used for experimentations with no new actors interested recently, as reported by the national regulatory authority ARCEP. Perennial frequencies are already available in the 2.6 GHz band for mobile networks meeting the specific needs of professionals. They concern 40 authorised geographic sites in the energy sector, transport, logistics, and industry.

As for VHCN, France is very ambitious in deploying 5G, aiming at covering 100% of the households by 2025. This would place France in the front runners in the EU. The target is realistic since France stands already at 93.2% coverage with a sustained growth. While the mobile broadband take-up (90.3%) is around the EU average (89.9%), the specific take-up of 5G by the population could be fostered as only 15.3% of the population has a 5G SIM card, below the EU average of 24.6%.

French mobile operators have made strong commitments regarding the deployment of 5G. They aim at several objectives: (1) deployment of 10 000 5G sites by 2025, (2) reach a speed of at least 240 Mbps for all sites by 2030, (3) coverage of road axes and railroad lines with 5G, and (4) the development of offers including the most innovative functionalities enabled by 5G, such as network slicing.

The French authorities pursue the support of projects promoting the deployment and use of industrial 5G. This support comes in the form of state aid and selected calls for projects. First, the call 'Innovative solutions for the networks of future 5G/6G' focusses on R&D work to anticipate developments in 5G and the future 6G, the development of sovereign solutions, and improving the environmental impact of networks. Second, the call 'Sovereignty in networks of telecommunications to accelerate 5G applications' supports 5G experimentation platforms bringing together the different actors in the value chain. And third, the call 'Campus Fablab 5GI' will aim at accelerating the process of appropriation of the uses of 5G by industrial companies of any size. The '5G and future telecommunications network technologies' strategy received EUR 300 million from the RRF.

Semiconductors

Semiconductors are a clear priority highlighted in France's roadmap and the long-term investment strategy *France 2030*. The various forms of supports should contribute significantly to increasing the national and EU production of semiconductors. The measures presented in the roadmap account for more than two thirds of the total budget identified in the roadmap. The aim is to reinforce the semiconductors R&D ecosystem, boost production capacity, and support breakthrough innovation and training in the sector.

The French state will promote the establishment of semiconductor production capacities in France. The strategy will cover the different segments of the value chain (in particular the production of components) by investing EUR 2.9 billion, which should attract EUR 7.5 billion of private investment (mainly from STMicroelectronics et GlobalFoundries). The additional production capacity could reach 620 000 wafers per year by 2028. The construction works are planned for 2022-2027 while 1000 jobs should be created in the period 2023-2026.

The roadmap also presents a support for innovation and first industrialisation projects. These subsidies are designed for lead companies and partners of the IPCEI Microelectronics and connectivity (approved in 2023). The expected impact is quite substantial with an estimated EUR 7 billion of private investment leading to the installation of factories and production lines and the creation of 2500 jobs by 2027.

The current production capacity mainly provides for low or medium tech chips used in car and telecom industries. The government now aims to upscale the production toward high-end 'chips for AI' to compete against big players from the US and China. The electronics sector will also be supported through aid for innovation (with a focus on exploratory research leading to breakthrough discoveries) and training of qualified staff to meet the needs of the industry.

With its ambitious and multifaceted strategy, France should contribute considerably to EU sovereignty in the semiconductors sector. The 2023 State of the Digital Decade report encouraged

France to continue actions in semiconductors to help the EU become a strong market player in this area. The level of ambition and the actions contained in the roadmap largely contribute to addressing this recommendation.

Edge nodes

The latest studies estimate that France has 257 edge nodes, making it a leader in the EU. It represents 22% of all edge nodes estimated in the EU (1186), above its share of GDP or population in the EU. France's roadmap does not set a national trajectory for edge nodes to contribute to the EU target of 10 000 climate neutral and secure edge nodes.

At the EU level, France participates to the IPCEI Next Generation Cloud Infrastructure and Services. It supports the development of software technologies useful for the exploitation of edge nodes, notably industrial 5G. It should also allow Europe to develop cutting-edge technologies for innovative edge nodes, with low latency and energy footprint. According to the French roadmap itself, France will have to accelerate the roll-out of peripheral nodes by 2030. At national level, France has adopted a cloud acceleration strategy (see Cloud section).
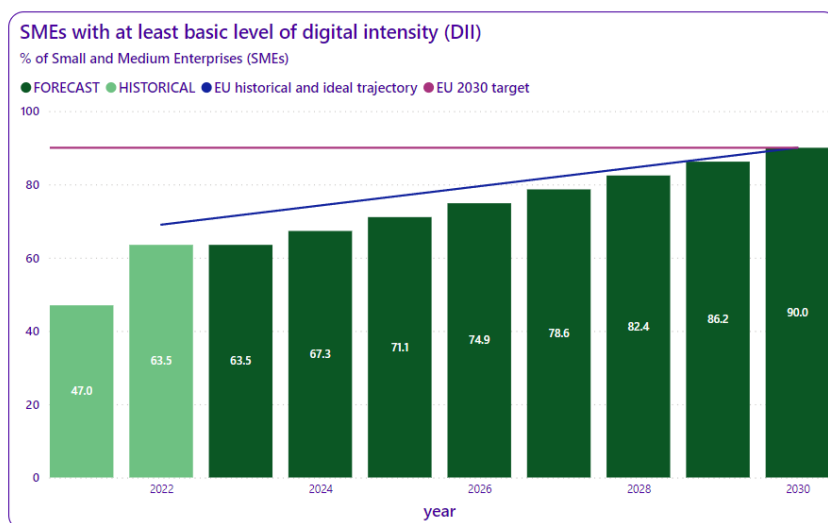
Quantum technologies

France pursues a national strategy for quantum technologies and aims to be one of the first countries to develop a large-scale universal quantum computer. The strategy is structured around four objectives: i) the development of technologies and uses of quantum computing, ii) the mastery of quantum sensor technologies; iii) the development and diffusion of post-quantum cryptography; and iv) mastery of quantum enabling technologies. In 2023, France obtained the installation of an Exascale EuroHPC supercomputer which will also integrate experimental partitions of hybrid quantum computing allowing the development and testing of quantum technologies. This supercomputer will also be able to integrate new European sovereign technologies. France also participates to the EuroQCI initiative, a secure quantum communications infrastructure covering the entire EU, including its overseas territories. Like for semiconductors, the State of the Digital Decade report 2023 encouraged France to continue its activities regarding quantum to help the EU become a strong market player. The latest developments in this area, including the actions presented in the roadmap, contribute to addressing this recommendation.

On the training side, the project 'QuanTEdu-France' brings together 21 French universities and schools in partnership with companies and startups in the sector. The programme aims to train the quantum talents of tomorrow, both through initial and continuing training, at all levels, with a major focus on PhDs. The ambition is to double the number of experts in quantum technology by 2027. The French private quantum ecosystem saw positive developments in 2023, as evidenced by the fundraising from Pasqal (EUR 100 million), Quandela (EUR 50 million) and Quobly (EUR 20 million).

Supporting EU-wide digital ecosystems and scaling up innovative enterprises

France lags behind on the digitalisation of its enterprises but can count on a thriving start-up ecosystem. By improving the digitalisation of its businesses, France could give its competitiveness a boost. This technological transition shall contribute to a fair digital environment as enshrined in the Declaration of Digital Rights and Principles while also ensuring the principle of freedom of choice for the consumer.

France

SMEs with at least basic digital intensity

SMEs with at least basic level of digital intensity (DII)
% of Small and Medium Enterprises (SMEs)
● FORECAST   ● HISTORICAL   ● EU historical and ideal trajectory   ● EU 2030 target

Historical values: 47.0 (2022), 63.5
Forecast values: 63.5, 67.3, 71.1, 74.9, 78.6, 82.4, 86.2, 90.0 (2030)

Note 1: DII 2022 is version IV that is not comparable with DII 2021, that was version III. The EU-level ideal trajectory refers to DII version IV, as published in the 2023 Communication on EU-level trajectories

Note 2: The source of national forecast values is the 2023 country roadmap

Commitment level
2030 national vs EU target
0 — 90.0 — 100
90.0 / 90.0

2023 state of play and recent progress

	Country level	EU level
FORECAST	63.5	71.6
DESI 2024	52.0	57.7
AVERAGE ANNUAL GROWTH %	5.2	2.6

In the case of DII, the average, annual growth is computed between 2023 and 2021 due to data comparability reasons.

France has untapped potential to contribute to the EU's Digital Decade target on digitalisation of SMEs. In France, 52.0% of SMEs have at least a basic level of digital intensity, lower than the EU average (57.7%). Due to a methodological change (implementation of the 'statistical unit enterprise' (SU ENT)), the new data produced in 2023 is not fully comparable with previous survey results, although a progress of +5.2% is observed. However, other indicators confirm that French SMEs could improve in digitalisation such as the share of SMEs selling online (12.7%) among the lowest in the EU (EU average: 19.1%).

The perception of digitalisation is a key factor for French SMEs to take the plunge. According to the [France Num barometer](#), 76% of VSEs and SMEs managers consider that digitalisation brings a real benefit for their company, in particular to improve communication with their clients and sell online. At the same time, doubts remain on the return on investment of digitalisation (only 39% of companies believe that digital technologies allow them to save money) and cyberthreats spark some fear among 48% of SMEs (a rise of +4pp since 2022). These perceptions might prevent some VSEs and SMEs from adopting certain technologies.

France presented in its roadmap a level of ambition in line with the 2030 target for the EU of 90% of digitalised SMEs. The effort is considered ambitious as the country starts below the EU average. With the current observed growth rate of the indicator, France will reach its target well after 2030. This suggests that extra efforts are warranted to catch up on this indicator. France received a recommendation in the 2023 State of the Digital Decade report to take specific actions to improve SMEs' rate of digitalisation, but France Num remains the main national tool to address that matter, combined with other schemes such as 'Industrie du futur', 'Cyber PME', or 'IA Booster'. However, no new additional actions were taken recently to answer the State of the Digital Decade report 2023 recommendation. The country hosts 13.4% of European SMEs; its performance is key to achieve the target of 90% of SMEs digitalised at EU level.

The main measure presented in the French roadmap to digitalise SMEs is the established [France Num](#) **scheme**. In response to the reluctance of some VSEs and SMEs to digitalise, one of the missions of the initiative France Num is first to convince enterprises on the benefits of digitalisation via awareness campaigns (website, TV show '[Connecte ta boîte](#)'), before accompanying them in their digital journey.

France Num targets companies from 0 to 249 employees, with a focus on companies with less than 10 employees (VSEs). Until now, more than 210 000 aid or support actions have been provided since November 2020 to this segment of businesses, including a wave of 34 000 diagnostics, 71 000 training actions, and 112 000 checks of EUR 500 allocated to very small businesses. Under its Digital Decade roadmap, France allocated around EUR 63 million to this measure, which includes RRF funding, with a concrete calendar of target performances. As for training actions, a new call for projects launched in 2023 should lead to a total of 125 000 of these awareness/training actions by mid-2025.

With a strong regional presence, 16 European Digital Innovation Hubs (EDIHs) have been established in two phases (2022, 2023) that contribute to the digitalisation of industry (notably in the manufacturing, mobility and plastics sectors) and the adoption of mainly AI and cybersecurity technologies, in synergy with national interventions. EDIHs are cofinanced by DIGITAL and by the regions, and they are being listed on France Num list of recognised interventions, and similar approaches have been taken to ensure complementarity with the national AI (IA Booster) and cybersecurity (Cyber PME) schemes implemented by BpiFrance on behalf of the Ministry.

Take up of cloud/AI/data analytics

- **Cloud**

Note: The source of national forecast values is the 2023 country roadmap

France has scope to improve its performance to contribute to the EU's Digital Decade target on cloud adoption. The take-up of cloud solutions by French enterprises (at 22.9% in 2023) is significantly below the EU average (38.9%). The progression since last measurement cannot be assessed since there was a break in series for France due to the implementation of the 'statistical unit enterprise' (SU ENT).

France presented in its roadmap a level of ambition (53.3%) below the 2030 target for the EU of 75% of enterprises adopting cloud. The value is linked to a modest starting point, far below the EU average. In absence of an intensification of efforts over the coming years, France's contribution to the EU target will probably remain limited.

The main instrument from France 2030 is the Cloud Acceleration Strategy, partly funded by the RRF. This strategy, endowed with EUR 550 million, supports innovation and development by companies, in order to develop cloud and edge services. It also finances research programmes at a low level of technological maturity in areas such as the orchestration and optimization of cloud resources and peripheral resources in a decentralized network. At the EU level, France participates to the recently

approved (December 2023) IPCEI Next Generation Cloud Infrastructure and Services. As a coordinator of this IPCEI, France is at the forefront of developing and deploying cutting-edge cloud and edge capacities. Furthermore, the working group created in 2022 and led by *Embedded France* should publish its conclusions in 2024.

France's cloud strategy focusses more on the supply than on fostering adoption by enterprises. The cloud strategy of France is centred on developing cloud R&D&I and boosting the supply side with the aim of doubling the market share of French cloud market players. However, given the low level of adoption and the general delay in the digitalisation of French enterprises, the roadmap could benefit from measures focussing specifically on the adoption of cloud technologies by enterprises, as monitored in the Digital Decade. It is crucial that enterprises step up the adoption of cloud since it supports the deployment of other technologies such as AI and edge nodes, both associated to the Digital Decade targets.

- **Data Analytics (Big Data)[8]**
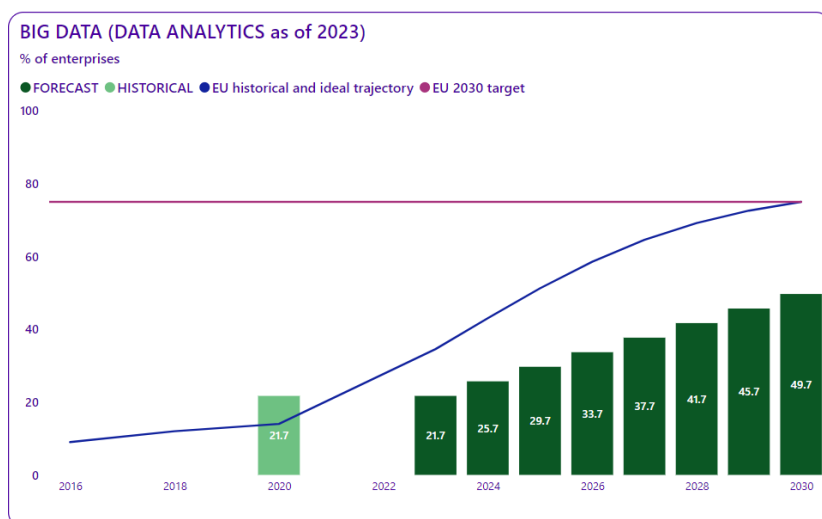
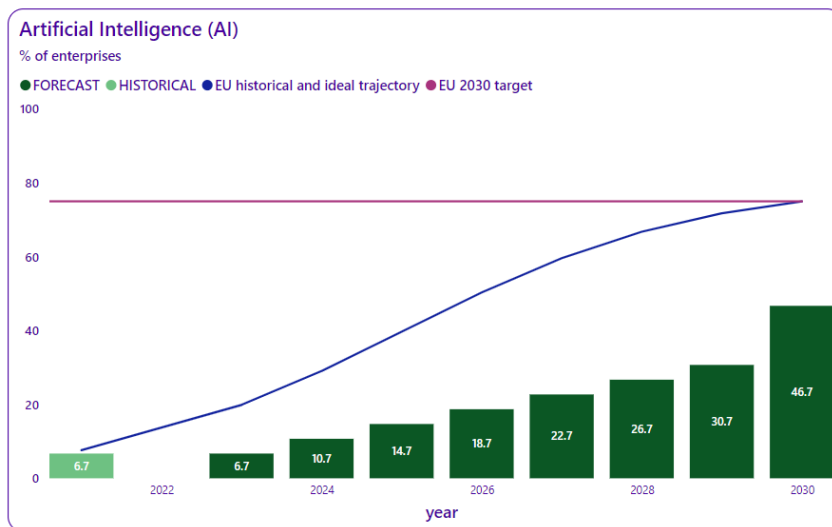Note: The source of national forecast values is the 2023 country roadmap

Concerning the use of data analytics by enterprises, France has untapped potential to contribute to this EU's Digital Decade target. The situation of France (33.9%) is in the EU average (33.2%). Progress cannot be assessed since the indicator's definition evolved.

France presented in its roadmap a level of ambition (49.7%) below the 2030 target for the EU of 75% of enterprises adopting data analytics. The country starting around the EU average, a higher level of ambition for this national target could be envisaged. The growth rate of the indicator cannot be computed, making it difficult to assess if France is on track or not to reach this target.

France's roadmap does not contain specific measures to foster the adoption of data analytics. However, given the current average level of adoption, France could rely on existing generalist digitalisation schemes (e.g., France Num) and the organic growth of the technology.

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[8] As of 2023, Big Data was changed by ESTAT, in agreement with all the EU National Statistical Institutes, into Data Analytics and covers a broader range of technologies including Big Data. For this reason, no comparison is possible with previous years.

- **Artificial Intelligence**

Artificial Intelligence (AI)
% of enterprises
● FORECAST ● HISTORICAL ● EU historical and ideal trajectory ● EU 2030 target

Values shown on bars: 6.7 (2022), 6.7, 10.7, 14.7, 18.7, 22.7, 26.7, 30.7, 46.7 (2030)

Commitment level
2030 national vs EU target
0 — 46.7 — 100 (75.0)

2023 state of play and recent progress

	Country level	EU level
FORECAST	6.7	19.9
DESI 2024	5.9	8.0
AVERAGE ANNUAL GROWTH %	-6.2	2.6

Average, annual growth is computed between the two most recent available data points.

Note 1: at the end of 2023 ESTAT revised backward the values of AI. The revised value for 2021 at the EU level is 7.6 % (from 7.9 %).

Note 2: The source of national forecast values is the 2023 country roadmap

France has untapped potential to contribute to the EU's Digital Decade target on AI adoption. Just like in the rest of the world, interest in AI soared in 2023 in France. According to a recent survey, 58% of software publishers consider AI as one of their three technological priorities, up 19 pp. compared to 2022. However, few French businesses are adopting AI solutions with a share of 5.9% in 2023, below the EU average of 8.0%. Due to a methodological change (implementation of the 'statistical unit enterprise' (SU ENT)), the new data produced in 2023 are not fully comparable with previous survey results.

France's roadmap sets a 2030 target of 46.7% of AI adoption in its roadmap, below the EU-level target of 75%. It appears that, in absence of an intensification of efforts over the coming years, France's contribution to the AI EU target will remain very limited. There seems to be a divide between frontrunners (e.g., start-ups) developing or actively adopting AI and the bulk of the French enterprises. Without mainstreaming AI in businesses from all sectors, the spread of the technology may remain limited, and this would have detrimental consequences on competitiveness.

Acknowledging this apparent delay in AI adoption, French authorities set out a national AI strategy**.** Its second phase is currently under implementation (2021-2025). In particular, 3 700 AI specialists should be trained to increase the offer of highly skilled workforce. The will of the authorities is also to increase the uptake of AI by companies through innovative schemes, such as 'AI Booster', with the aim of raising awareness, spreading the culture, and supporting SMEs in the adoption of AI technologies. France also launched call for projects focusing on accelerating the use of generative AI in specific sectors of the economy. As the second EU economy, the leading role of France is to be acknowledged, notably through the joint trilateral declaration from October 2023 with Germany and Italy on the industrial cooperation and AI. The collaboration between the three countries aims to prepare the way for the emergence of a globally competitive European AI industry, via notably exploiting the potential of the European Digital Innovation Hubs (EDIHs), Testing and Experimentation Facilities (TEFs) and the European Digital Infrastructure Consortia (EDICs).

France

On 13 March 2024, the national AI Commission published its work. The report highlights that France invested three times less than the US in AI in term of % of GDP and recommends investing EUR 5 billion per year for 5 years to bridge the gap. Experts recommended the creation of a 'France & AI' fund of EUR 10 billion to finance the emergence of the AI ecosystem and the digital transformation of the French economy thanks to AI. The experts insist that there is a risk of missing the AI revolution which affects all sectors and activities. They also state that France's annual economic growth could potentially double in 10 years thanks to AI.

- **Take-up by enterprises of AI or Data analytics or Cloud**

Taking the three technologies together (adoption of either AI, cloud, or data analytics), France stands at 44.9%, significantly below the EU average of 54.6%. The below-average performance of France is the consequence of the low adoption rate of cloud and AI, a diagnosis shared by the French authorities in their roadmap.

Unicorns/scale-ups/start-ups

The French start-up ecosystem is very dynamic, backed by government initiatives in the sector over the past decade. Although the size of the ICT sector in France (4.7% in 2020) is below the EU average (5.2%), the venture capital investments for seed and start-up amounted to 0.07% of GDP in 2022, according to the OECD, which is above the other large EU economies (Germany, Italy, Spain). The French government launched several financial actions to nurture the start-up ecosystem with investment (see SDDR 2023 France country report for more details).

France benefited in the past years from a record attractiveness for foreign direct investments. In 2023, for the fourth consecutive year, France tops the European ranking for foreign direct investments for all sectors (i.e., not only ICT). This is mainly due to incentives in innovation policy, notably through the tax credit for research 'Crédit d'impôt recherche'. The attractiveness of France for foreign investments also relies on the access to a decarbonized energy, access to a qualified workforce and the overall quality of life. The latter could also contribute to attracting the necessary talents for a flourishing start-up ecosystem.

France had 36 unicorns in 2022 rising to 40 in 2023, and the ambition is to reach 100 unicorns by 2030. It should also include 25 'green sector' unicorns. This goal means far more than doubling the number of unicorns and represents 20% of the EU-level target (500 by 2030) while France accounts for roughly 17% of the EU's GDP. Though this is ambitious, the dynamic start-up ecosystem allows France to punch above its weight.

Strengthening Cybersecurity & Resilience

As companies rely increasingly on digital technologies, their risk of exposure to cybersecurity incidents is increasing, as is their need for preparedness in this area. In 2022, 2.4% of enterprises in France reported ICT service outage due to cyberattacks (e.g., ransomware attacks, denial of service attacks), which is below the EU average (3.5%). French enterprises seem more prepared than their EU peers as 39.9% of enterprises reported being insured against ICT security incidents (above the EU average of 25%) and 93.4% reported using ICT security measures (EU average: 91.8%).

Cyberthreats also affect the French public administration. The recent cyberattack on the national employment agency *France Travail* in February 2024 that potentially led to the leak of personal data of 43 million citizens is a reminder that cyberattacks not only target businesses but also public administration.

France

Since 2018 France has implemented its national cybersecurity and cyber defence strategy. Its review work resulted in a set of technical, legal, and even organisational measures to better protect France against cyber-attacks. The system has been continually adapted and will be key in 2024 to monitor important events such as the EU elections or the 2024 Olympic and Paralympic Games. In preparation for the Games, the national cybersecurity agency ANSSI has identified entities whose cyber resilience is important for the success of this event and has undertaken capacity building activities. To support the implementation of the NIS2 Directive in France, ANSSI has launched the MonEspaceNIS2 web portal that offers information for entities in scope of the requirements.

For companies, the *Cyber PME* scheme action is designed to support SMEs in carrying out their cybersecurity strategy. It provides support and advice ranging from diagnosis to the implementation of an action plan, including the purchase of solutions. The spread of cyber hygiene practices among enterprises relies a lot on the sector strategic committees (*comités stratégiques de filière*) where leading companies can spread their best practices to their partners or subcontractors.

On research and innovation in cybersecurity, the France 2030 investment plan supports the development of sovereign and innovative cybersecurity solutions. The plan also funds the training of cybersecurity experts and helps meet demand of individuals, businesses, local authorities, and the State. The Cyber Campus is a flagship achievement of French cybersecurity policy. It brings together more than 160 national and international players on a single site and aims to promote the implementation of research and development projects, as well as the emergence of the cyber unicorns. The target of the French authorities is to triple the turnover of French cybersecurity firms by 2030.

French authorities consider that international cooperation is key in cybersecurity. The national strategy is well aligned with the objectives of the European Cybersecurity Competence Centre's strategic agenda and will allow France to contribute to the challenges of training, support for small structures and boost research, development and innovation in cybersecurity.

Protecting and empowering EU people and society

Empowering people and bringing the digital transformation closer to their needs

France is designing its digital transition to have a strong emphasis on inclusiveness. Putting people at the centre of the digitalisation is the consequence of a long history of welfare state. Regarding digital training, France acts on basic education but also on life-long learning, both aiming at narrowing socio-economic divides. It has developed several specific inclusion programmes such as the training of digital advisors to be deployed in all the territories, included rural areas. The gender gap at work in the ICT sector is addressed by tailored actions. Finally, the digitalisation of public services, including that of the health sector, has gained attention in recent years with many measures implemented at all levels of administration. Many of the government's measures aim to narrow existing divides (geographical, socio-economic, gender, generational). Recent events in France evidenced that leaving no one behind is a crucial and sensitive topic, across all domains. The topic of child protection online and screen time of the youngest recently gained prominence in the political debate. The government is introducing a bill with additional measures to strengthen the protection of minors online. It provides for the publication of a technical reference system for a better age verification. The bill also makes it a priority to combat cyber-harassment and it temporarily bans people convicted of cyber-harassment or online hate crimes from recreating an account on the online platforms. According to the **Digital Decade Eurobarometer**, only 64% of the French population consider that the digitalisation of daily public and private services make their life easier. This is one of the lowest scores in the EU and significantly below the EU average (73%).

Equipping people with digital skills
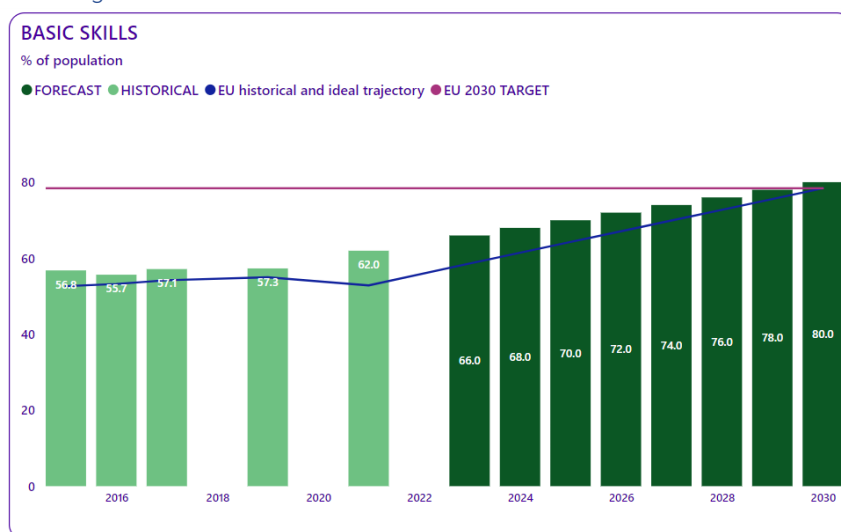
Basic Digital Skills

Note 1: Data break-in-series in 2020

Note 2: The source of national forecast values is the 2023 country roadmap

France brings a positive contribution to the EU's Digital Decade target on basic digital skills but demonstrates very limited dynamics. In 2023, 59.7% of the French population had at least basic digital

skills. It is above the EU average of 55.6%, but behind the frontrunners' performance. The indicator is slightly below the level reached in 2021 (62.0%), while the EU progressed slightly over the same period. The decrease could however be explained by post-COVID-19 effects with a decreased digital activity of the population with, for example, less telework or use of e-commerce between 2021 and 2023. Other digital skills indicators such as internet use (92.2%), above basic digital skills (30.6%), and basic digital skills in content creation (71.8%) point to a similar performance: France is above the EU average, but behind the frontrunners, and ranks in the second quartile of the EU distribution.

The above EU average performance gives France a slight head start to achieve its 2030 target. The national target is set to 80%, on par with the EU 2030 target. However, given the current rate of progress, reaching this target by 2030 would imply an intensification of efforts.

To improve the basic digital skills of the population, France acts on the very fundamental aspects of education. In a response to the drop in PISA results, especially in science subjects, it will boost the teaching of mathematics and authorities announced the creation of a baccalaureate test dedicated to mathematics and scientific culture. The aim of these measures is to increase the pool of young people that would ultimately be interested in studying STEM and ICT and/or embarking on a digital career in the future. The strategy is long-term and will probably bear fruits during and beyond the Digital Decade's time horizon. The weakness in mathematics was identified both in the State of the Digital Decade and European Semester country reports of 2023 and the authorities' actions are thus a very welcome answer in this respect.

The French authorities have taken inclusion measures to improve the digital literacy of the overall population. In particular, France has trained digital advisors (with the objective to train 20 000 'helpers' by 2025) and provided support to over 2 million French people in performing digital tasks (see best practice box below). Inclusion measures are key to reducing digital divides in a country with a sizeable rural population and where recent events have highlighted that the centralisation of economic activities and decisions is an issue.
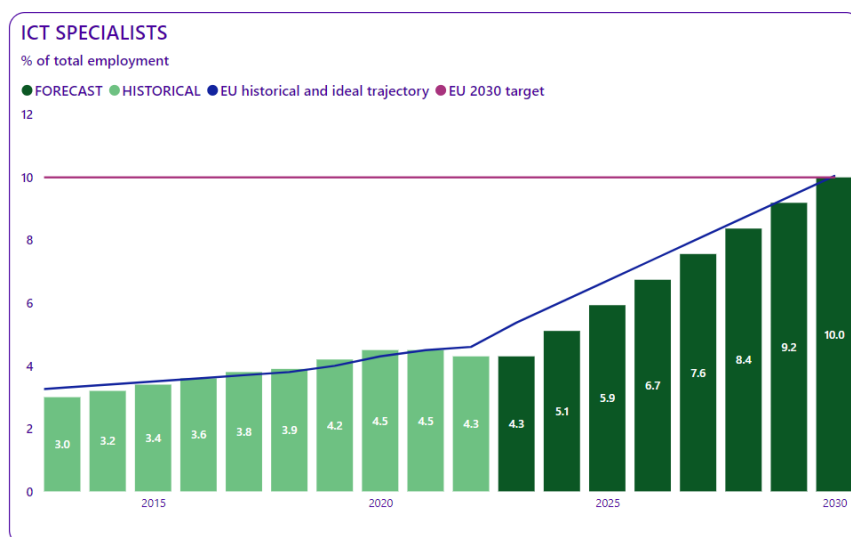
ICT specialists

Note: The source of national forecast values is the 2023 country roadmap

France brings a positive contribution to the EU's Digital Decade target for ICT specialists and shows a very strong dynamic. The share of ICT specialists of total employment is 4.7%, the highest ever observed in France and around the EU of 4.8%. It is however more dynamic than the average with an

annual growth rate of +9.3% (+4.3% in the EU). Of these ICT specialists, 20.1% are women, which is higher than the EU average (19.4%). This is a progression toward gender convergence as this share was 19.0% in 2022. However, the share of ICT graduates represents only 4.1%, below the EU average of 4.5%.

Looking at the change over time in the number of ICT specialists, the target set by France in the roadmap is ambitious. The long timeseries provided by the Eurostat's Labour Force Survey shows that the percentage of ICT specialists among the total employment varied between 3.9% and 4.7% between 2018-2023 (reaching 4.7% in 2023, the last datapoint). The sharp increase of the proposed trajectory, required to reach the EU target (10% by 2030), contrasts with the sluggish trend observed, albeit the recent numbers are encouraging. The path to the 2030 target would correspond to more than doubling the current share of ICT specialists. In absolute numbers, France had 1.35 million ICT specialists in 2023; reaching the 2030 EU goal requiring almost doubling the current share would mean increasing to about 2.5 million ICT experts. In early 2023, the government announced the goal of training 400 000 digital experts by 2030, which is far off the required effort to reach the Digital Decade goal. Due to its large population, the efforts of France will have decisive consequences on the achievement of this 2030 EU target.

To increase the number of ICT specialists, France proposes to take action both on initial training and lifelong learning. On the initial training, the 'Digital and Computer Sciences Week' programme and the digital strategy for education (January 2023) will promote specialised studies and baccalaureates leading to digital careers, including attracting more young women. In this context, the 'Grande Ecole du Numérique' launched a new portal in June 2023, to give visibility to more than 15 000 digital training courses to reorient students toward digital study fields. The call for expressions of interest 'Skills and Jobs of the Future' (EUR 2.5 billion in total for all topics) should fund training more than 9 000 cybersecurity specialists by 2025 and more than 3 700 artificial intelligence specialists by 2030. The French authorities intend to support several innovative training schemes to strengthen lifelong learning. A dedicated action plan is currently being designed with skills operators. The State of the Digital Decade report 2023 suggested France continues to upskill and reskill the workforce, a recommendation which this set of measures addresses at least partially.

France actively promotes the inclusion of women in technological start-ups. The Parity Pact sets up a framework for enterprises to, among others, support women in high responsibility jobs. The initiative 'Tech pour Toutes' aims to support at least 10 000 female students each year in their training in digital careers by 2026.

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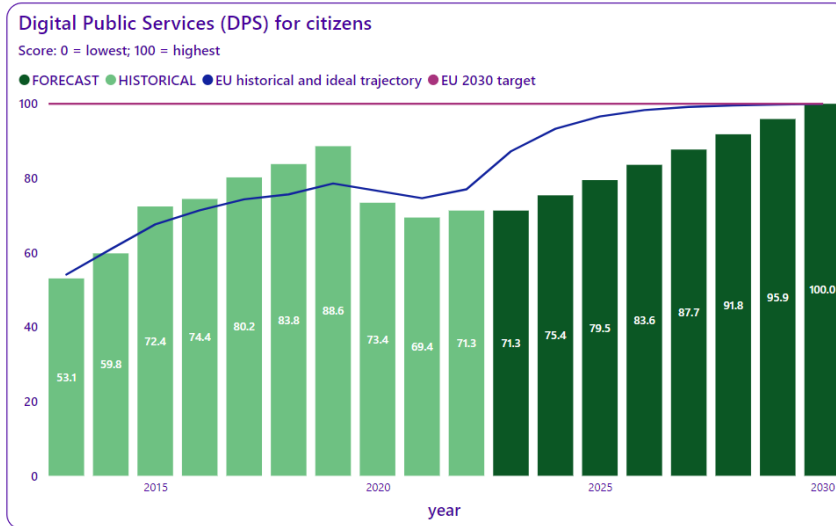### e-ID

France considers e-ID a priority as evidenced by the quick and recent development of the e-ID framework. The country is making progress in producing e-ID cards and releasing e-ID applications. In February 2024, the authorities launched 'France Identité', the companion application which allow the e-ID users to authenticate and access digital ID services. The development of the e-ID framework is designed toward future identity dematerialisation usage such as the inclusion of the driving license and within the European framework of the eIDAS regulation.

France participates to the European consortium called POTENTIAL (PilOTs for EuropeaN digiTal Identity wALlet), EWC (European Wallet Consortium), and DC4EU (Digital Credentials for Europe). It aims to test the deployment of a digital identity wallet to simplify and secure online procedures for European citizens, to facilitate the processing of procedures by administration services, and to fight

against identity theft. It involves 19 Member States and Ukraine, including 38 ministries, 34 state operators, 9 research centres, 51 large companies and 12 start-ups. The development and testing of the European digital identity wallet will extend over a period of 26 months, dived in two phases: a first phase for testing national solutions, until October 2024; a second phase with cross-border tests aimed at securing the interoperable nature of the different solutions. The consortium benefits from EUR 16 million of European subsidies.

*Digitalisation of public services for citizens and businesses*

Digital Public Services (DPS) for citizens

Score: 0 = lowest; 100 = highest

● FORECAST ● HISTORICAL ● EU historical and ideal trajectory ● EU 2030 target

Bars (year, value): 53.1, 59.8, 72.4, 74.4, 80.2, 83.8, 88.6, 73.4, 69.4, 71.3, 71.3, 75.4, 79.5, 83.6, 87.7, 91.8, 95.9, 100.0

year

Note 1: Data break-in-series in 2020

Note 2: The source of national forecast values is the 2023 country roadmap

Commitment level
2030 national vs EU target

0 — **100.0** — 100

2023 state of play and recent progress

	Country level	EU level
FORECAST	71.3	87.2
DESI 2024	72.1	79.4
AVERAGE ANNUAL GROWTH %	1.1	3.1

Average, annual growth is computed between the two most recent available data points

Digital Public Services (DPS) for businesses

Score: 0 = lowest; 100 = highest

● FORECAST ● HISTORICAL ● EU historical and ideal trajectory ● EU 2030 target

Bars (year, value): 52.6, 60.3, 77.1, 82.8, 83.2, 84.4, 92.3, 91.4, 80.1, 79.3, 79.3, 82.3, 85.2, 88.2, 91.1, 94.1, 97.0, 100.0

year

Note 1: Data break-in-series in 2020

Note 2: The source of national forecast values is the 2023 country roadmap

Commitment level
2030 national vs EU target

0 — **100.0** — 100
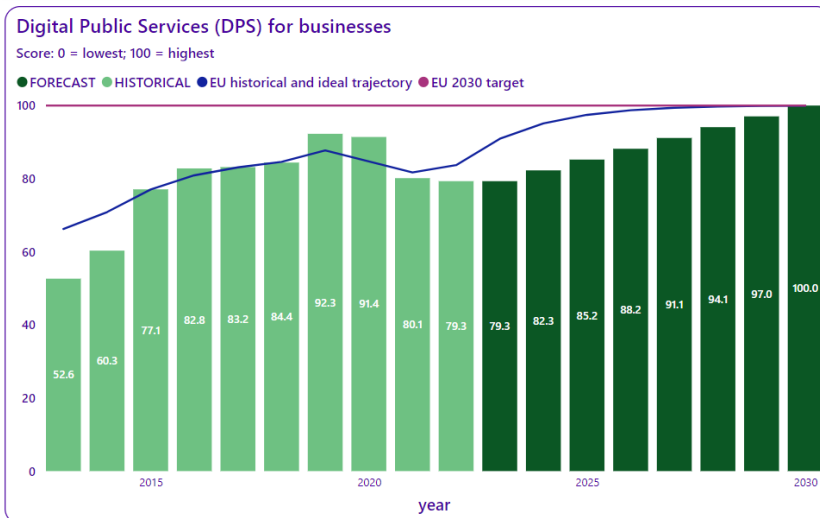
2023 state of play and recent progress

	Country level	EU level
FORECAST	79.3	90.9
DESI 2024	79.3	85.4
AVERAGE ANNUAL GROWTH %	0.0	2.0

Average, annual growth is computed between the two most recent available data points

France has untapped potential to contribute to the EU's Digital Decade target on the digitalisation of key public services for citizens and businesses, while demonstrating limited dynamic. On both public services for citizens (72.1) and businesses (79.3), France ranks below the EU average in absolute value and annual growth. However, very good performances could be observed in the use of e-government by internet users in the last 12 months (90.8%, EU average: 75.0%). This large appetite of the population for digital public services should encourage speeding up their development.

France aims to reach the EU target of 100% digital public services by 2030. However, given the current limited growth of digitalisation, the country is at risk of missing the target. It is below the average dynamic of the EU which, according to projections, is adequate to realistically reach the target at the end of this decade.

In France, the digitalisation of public services is a crucial enabler to relieve administrative burden, hence to improve competitiveness. The issue of administrative burden and complexity is often raised as limiting growth, especially for businesses. Therefore, the digitalisation of administration goes hand in hand with the administrative simplification strategy being implemented since 2017 and should have benefits, not only for citizens, but for the economy in general.

The French authorities have committed to investing resources to digitalise 250 of the most essential administrative procedures by 2027.

The strategy for the digitalisation of public services also relies on advanced technologies such as responsible data sharing and experimentation with AI tools. Several monitoring tools were also implemented such as 'Services Public +' and the observatory 'Your essential digital steps' which are intended to improve the quality and the efficiency of public services through consultations. France experiments the use of AI tools in the administration with its [sovereign solution Albert](#) presented in 2024, aiming at increasing the efficiency of public services. The State of the Digital Decade report 2023 suggested France takes measures to further strengthen the alignment of the different administrative levels involved and to improve the interoperability, effectiveness, and availability of online public services. The current actions seem to go in the right direction, but actual implementation should be monitored up to 2027**.**

e-Health
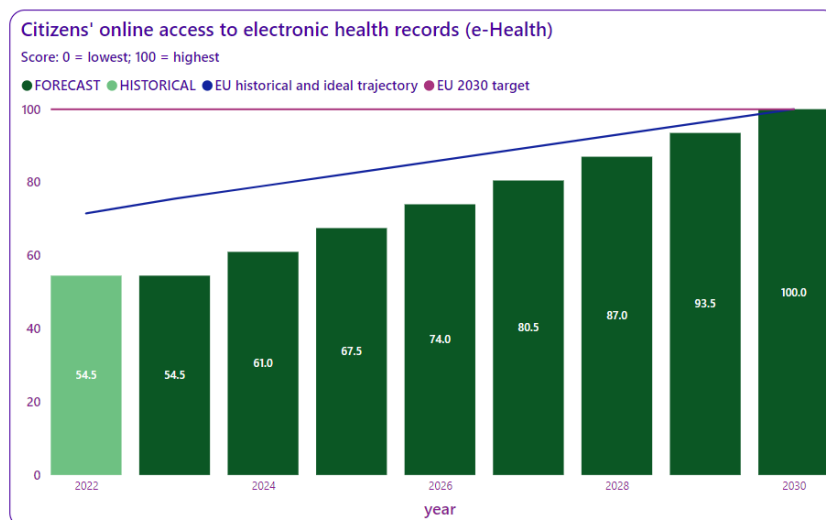
Note: The source of national forecast values is the 2023 country roadmap

France has untapped potential to contribute to the EU's Digital Decade target on e-health but shows very strong dynamic. France has an overall e-health maturity score of 79.3 in 2023. This compares to a maturity score of 54.5 in 2022, showing a spectacular progression. It allowed France to catch up with the EU average of 79.1. A centralised, nationwide access service is technically available in France. Between 80 and 100% of the national population is technically able to access the online access services for e-health records through both native mobile applications and online portals, logging in using an e-ID based on two-factor authentication. The access to e-prescription/e-dispensation is however poor. All but three data types – medical devices/implants, medical images, and eDispensations – are made

available to citizens. The types of connected healthcare providers have expanded since 2022, with public and private primary care centres, rehabilitation centres, and mental health facilities additionally contributing data to the national electronic health record system. Furthermore, the online access service is now reported to comply with the general accessibility improvement reference framework (https://accessibilite.numerique.gouv.fr/). France can further improve its e-health maturity by implementing functionality for authorised persons to access electronic health records on behalf of others. Regarding access opportunities for certain categories of people, France scores 75 compared to a European average of 77 and does follow the Web Content Accessibility Guidelines.

For 2030, France aims to achieve a score of 100 in e-health, in line with the EU target. Given that France caught up with the EU average and demonstrated significant progress recently, the target seems achievable if France maintains this pace of progress.

In 2023, 55% of people in France sought health information online, close to the EU average (56%). However, the Digital Decade Eurobarometer suggests that only 72% of French respondents find digital technologies are important to access or receive healthcare services, which is below the EU average of 79% and a drop from last year.

The digitalisation of the health sector is a priority in France, as evidenced by the largest digital measure from the French Recovery and Resilience Plan (RRP) dedicated to e-health. The digital health acceleration strategy aims to promote the emergence of innovative e-Health solutions supported by innovative multidisciplinary scientific approaches. The strategy operates along 5 axes: (1) developing the knowledge necessary for tomorrow's digital health, (2) supporting and facilitating access to the market, (3) catalysing the development of a large French digital health ecosystem, (4) strengthening confidence in e-health through training, and (5) strengthen the policy of sharing and exploitation of health data. Notably, the strategy includes calls for projects aimed at evaluating the benefits of digital medical devices or based on AI. France is also a member of the working groups working towards setting up the Genome EDIC and the European Cancer Imaging Initiative (EUCAIM) EDIC. The State of the Digital Decade report 2023 suggested France complements the RRP funding of hardware equipment in hospitals with measures to involve users and adapt the organisation to the new data flows. While no new measure was proposed yet, the implementation of the RRP is considered on track until now.

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

Only 67% of people in France consider digital technologies important for engaging in democratic life. As measured in the Digital Decade Eurobarometer, this rate is below the EU average (74%) but in progress since last year (+7pp).

France considers the Digital Service Act (DSA) as a major tool for the protection of people online. The DSA was adopted during the French presidency of the Council of the EU and aims at protecting online users from the spread of illegal and harmful content, illegal and dangerous products, and disinformation. The DSA also imposes strong obligations to protect user privacy, in particular by banning advertising that target minors or the use of sensitive data within the meaning of the GDPR. At the national level, a bill to secure and regulate the digital space provides for other concrete measures relating to consumers, in particular the establishment of an anti-scam filter to block sites which, with phishing practices, seek to extract money or sensitive data to users.

France

Hate speech online is a growing problem in France. Indeed, in 2023, 41% of the population encountered hostile or degrading online messages in the last 3 months of a Eurostat survey, significantly above the EU average of 33.5%. Under the DSA, all platforms must put in place mechanisms for reporting illegal content, in particular discriminatory content, harassment, or incitement to hatred. As soon as they become aware of the report, they must process it as quickly as possible.

France prioritises child protection online. The topic of children protection online and screen time of the young children has recently gained in prominence in the political debate. The government is introducing a bill with additional measures to strengthen the protection of minors online for example by restricting access to sites containing pornographic content. The bill provides that the Regulatory Authority for Audiovisual and Digital Communication (Arcom) publishes a technical reference system relating to age verification systems for sites offering pornographic content to ensure their validity. The fight against cyber-harassment is also a pillar of this bill, which will temporarily prohibit people convicted of cyber-harassment or for online hate crimes from recreating an account on the online platform concerned. According to the Digital Decade Eurobarometer, 38% of French citizens consider that the recent EU regulations of online platforms might have a strong impact on the protection of minors, which is above the EU average of 33%.

Leveraging digital transformation for a smart greening

For France, the green transition is a top priority in all policies, including those related to digitalisation. France demonstrated in recent years a pioneer mindset in developing policies for the green transition with flagship measures such as the law 'Climate and Resilience' or the national low carbon strategy (*Stratégie Nationale Bas Carbone*). The country developed many monitoring frameworks to assess the environmental impact of policies in all areas such as the annual green budgeting exercise. France has a broad approach of the green transition, acting at several degrees by designing methodologies, fostering innovation, accompanying enterprises, training workers with the relevant skills, and coupling it with the digital transition.

The digital sector represents 2.5% of France's carbon footprint (17Mt CO_2)[9]. The terminal equipment (computers, tablet, screens, mobile phones, …) account for the majority of the digital carbon footprint (79%). While most of the equipment is imported (and therefore also its emissions), France set up a bonus in 2022 to incentivize the reparation of electric and electronic equipment. The share of sales of reconditioned mobile phones represents now 15% of the total sales. Networks energy consumption continues to increase but at a slower rate than in previous years (+3% in one year in 2021 compared to +6% in 2020). Moreover, the adoption of fibre is expected to play a positive role in this respect, since the average energy consumption per subscription amounts to 34 kWh on a copper network compared to less than 10 kWh on fibre optic networks.

On the whole, French people and companies are sensitive to the green transition of the digital sector. In France, 45.1% of enterprises considered the environmental impact of ICT services, or ICT equipment, before selecting them and applied some measures, affecting the paper or energy consumption of the ICT equipment, which is along the EU average (Eurostat). French citizens tend to recycle more their ICT devices (11.9% for laptops and tablets, 14.9% for desktops) than the EU average (9.7% and 12.8%, respectively).

France emerges as a European leader in monitoring the impact of digitalisation on the environment and in promoting the adoption of sustainable digital principles. France follows a general policy aimed at reconciling digital and environmental transition and supporting the eco-responsibility of the digital sector while developing a more sober competitive offer of digital solutions. France is demonstrating leadership in the green transition of the digital sector by being a frontrunner in the development of monitoring methodologies. For example, France developed a general framework for the eco-design of digital services (see dedicated 'Best practice' box) and, since 2021, a repairability index to better inform the consumer on repairable nature of their purchases.

France published in July 2023 a digital decarbonization roadmap, that benefited from a large consultation with stakeholders in the sector and a review by a committee of technical experts. The roadmap identifies the obstacles to be removed and the actions to be taken to reduce the digital carbon footprint by 40% by 2030. This work feeds into the update of the French National Low-Carbon Strategy, planned for 2025, which will set, for the first time, objectives dedicated to the digital sector.

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[9] Etude ADEME – Arcep sur l'empreinte environnementale du numérique en 2020, 2030 et 2050 (2023)

The country is also a provider of a mostly decarbonized electricity that could be an incentive for attracting digital businesses willing to lower their carbon footprint. The State of the Digital Decade report 2023 encouraged France to continue its activities regarding the environmental aspect of digital sectors and the set of polices currently in place largely contributes to addressing this recommendation.

During its Presidency of the Council of the EU, France drafted a joint declaration on the dual digital and environmental transition, signed by 22 Member States. They called for defining, by 2026, objectives to maximize the use of digital technology in favour of the ecological transition while limiting its carbon and environmental footprint. At national level, France proposed in 2023 a decarbonisation roadmap for the digital sector to identify instruments to reduce its environmental footprint. The acceleration strategy for eco-responsible, competitive, and sovereign digital technology included in the France 2030 plan embodies the financial aspect of this ecological planning and foster concrete commitment of the digital sector. The French administration itself (with DINUM, the inter-ministerial digital department) commits to 'digital sobriety' with, for example, a target of buying 20% of reconditioned terminals or the donation of digital equipment.

France is a member of the CitiVERSE EDIC (already set up). The CitiVERSE initiative aims at connecting existing local digital twins across Europe. Local digital twins are virtual representations of a city's physical assets, processes, and systems. The CitiVERSE focuses on advancing generative AI applications in smart cities, including simulations addressing the impact of changing traffic conditions on air quality, decarbonization and congestion. This EDIC is a very good example of an EU-level collaboration to use digital tools to manage the green transition.

Best practice: a general framework on the eco-design of digital services

According to a study conducted by the ecologic transition agency ADEME and the national regulatory agency for telecoms ARCEP, data traffic will be multiplied by 6 in 2030 and the number of terminal equipment will raise by +65%, increasing drastically the environmental impact of the digital sector.

Consequently, French authorities launched in 2022 the development of a general non-binding framework on the eco-design of digital services targeting all development and digital design professions. It has four objectives:

1. To design more sustainable digital services to extend the lifespan of terminals;
2. To promote an approach of sobriety in strategies designed to capture the user's attention;
3. To reduce IT resources mobilized (in particular the demand on infrastructure);
4. To increase the level of transparency on the environmental footprint of digital services.

To enable self-assessment of eco-design approaches, the framework set 91 criteria covering nine topics (strategy, specifications, architecture, user experience, content, front/backend, hosting, training). The results are presented as a progress score and an eco-design declaration (including details of the implementation of the benchmark and the calculation of the score). This self-assessment would constitute an opportunity for digital service providers to showcase their eco-responsibility while allowing users to make educated choices on the impact of various digital services on the environment.

A first consultation was launched in 2023 and the final publication is expected in 2024.

Annex I – National roadmap analysis

France submitted its national strategic roadmap on 18 January 2024. It was officially presented to the public on 25 March 2024 at an event involving the Secretary of State in charge of Digital, the Director General of Enterprises and a range of stakeholders from the digital sector, along with the Director General of DG CNECT from the European Commission. (link to the official roadmap)

The French roadmap is mostly complete and contains 12 targets and 11 trajectories until 2030 (out of 14 expected). The FTTP trajectory is assumed to be similar to the one presented for VHCN, since France relies integrally on fibre deployment, but missing edge nodes and unicorns. Most of the national targets match those of the EU for 2030, with the notable commitment of 100% fibre and 5G coverage to be achieved as early as 2025. The adoption of technologies by enterprises (cloud, AI, data analytics), taken separately are set below the 75% target (53%, 50%, 35%, respectively). The trajectories have been computed on the basis of the correct KPI definitions but might require adjustments to correct the starting year (DESI2023 indicators were measures in 2022 or earlier, depending on the indicator). The below table reflects a best-effort attempt at categorising the measures and budget as presented in France's roadmap:

Digital Decade target	Budget in the roadmap (EUR million)	Number of measures in the roadmap
Connectivity gigabit	35.7	2
Connectivity 5G	128.0	2
Semiconductors	12160.0	3
Edge nodes	550.0	1
Quantum computing	1000.0	1
SME take up	61.7	1
Cloud/AI/Big data uptake	-	-
Cloud only uptake	150.0	1
AI only uptake	25.0	2
Big data uptake	-	-
Unicorns	-	-
Basic digital skills	204.0	2
ICT specialists	2500.0	2
e-ID	16.0	4
Key public services	0.0	2
e-Health	848.4	2
Objectives	129.0	3
Total	**17807.9**	**28**

France presents a non-exhaustive selection of the main policies and measures contributing to the achievement of each of the Digital Decade targets. The roadmap's measures also cover several types of objectives: technological leadership, sovereignty, competitiveness, cybersecurity, fundamental rights, and sustainability. In total, the measures presented amount to EUR 17.8 billion, not including confidential budgets. While the vision set out in the roadmap is presented as

comprehensive, a substantial share of the roadmap's budget (68%) will contribute to increasing the production of semiconductors. Also, the roadmap emphasises R&D measures across several domains (e.g., 5G, chips, quantum, cloud, AI), a consequence of the ongoing implementation of the France 2030 investment programme. The interplay between the digital and green transitions is strongly developed and backed by measures and proposals. The source of funding (especially EU funding) does not seem accurate in the current document. The roadmap is weak on proposing new/scaled up measures for the digitalisation of enterprises, especially SMEs' digital intensity and the take-up by enterprises of advanced technologies (not only R&D). New tailored measures to answer challenges identified in the State of the Digital Decade report 2023 (e.g., digitalisation of SMEs) would have been welcome.

Overall, the roadmap is consistent with efforts in all the dimensions of digitalisation. However, some aspects might require more effort. For example, the skills elements could benefit from more focus given the ambitious targets at EU and national levels, especially for ICT specialists that will require roughly doubling the current number of ICT professionals. The resources dedicated to the digitalisation of enterprises (both basic intensity and adoption of advanced technologies) could also be increased given the delay observed in France compared to the EU's progress.

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

MCP and EDICs

France is the hosting member of the ALT EDIC (already set up), the candidate host for the possible future AgriFood EDIC, and is co-leading the prospective EDIC Digital Commons together with the Netherlands. France is also a member of the Local Digital Twin towards CitiVERSE EDIC[10](already set up).

France is developing the Statute and other relevant documents for the possible future EDICs for Mobility and Logistics EDIC and the Genome within informal Working Groups. It is engaging in discussions on the setup of possible future Cancer Image Europe (EUCAIM) EDIC, also within an informal Working Group. All in all, France is active in a number of EDICs already set-up or in the making.

France also reported participating in several multi-country projects: the POTENTIAL consortium on e-ID, the blockchain experimentation on university degree certification, EuroHPC, and Joint Undertakings on Chips and Smart Networks and Services.

EU funding for digital policies in France

EU funds support the digitalisation efforts in Member States. The French Recovery and Resilience plan devotes EUR 8.1 billion (22% of the total) to the digital transformation. According to a Joint Research Centre's study[11], EUR 7.7 billion of the French Recovery and Resilience Plan directly contribute to achieving Digital Decade targets. Out of the Cohesion Policy funds received by France, EUR 1.2 billion contribute directly to Digital Decade targets according to the same mapping study.

The largest digital measure of the Recovery and Resilience Plan is dedicated to the modernisation of the public health sector (EUR 2 billion). The measure 'Innovating for the resilience of our business models' (EUR 1.8 billion) supports R&D in key digital technologies such as 5G, cloud, quantum, cybersecurity, and digital skills. The high-speed broadband plan ('France très haut débit') receives EUR 240 million from the RRF. As of March 2024, the implementation of the French RRP goes as planned as evidenced by the two first payment requests that successfully lead to the disbursement of EUR 22.8 billion with no missed targets or milestones.

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[10] Information updated on 31 May 2024
[11] Based on an estimation of the possible contribution to the Digital Decade (Joint Research Centre report 'Mapping EU level funding instruments to Digital Decade targets - 2024 update' (Signorelli et al., 2024)).