Digital Decade Country Report 2023

Romania

Introduction

A number of measures are starting to be implemented in Romania, partly under the Recovery and Resilience Plan (RRP). These touch on most dimensions of digital transformation, notably e-Government and human capital, but also digitalisation of businesses. If well implemented, these measures will over time generate concrete results for citizens and businesses and bring significant benefits to the economy. While Romania's economy continues to grow fast and catch up with the EU average, there is still significant untapped potential in terms of reaping the benefits of digital transformation.

Romania has scope to improve its performance in the digital transition and to contribute to the collective efforts to achieve the EU's Digital Decade targets. Notable exceptions are fixed connectivity, especially Fibre-to-the-Premises (FTTP), where Romania performs best in the EU, and is still progressing rapidly, and the very high relative number of ICT graduates, with a high share of female ICT specialists, where Romania could make an important contribution to EU's Digital Decade targets.

There is also progress on digital public services, where Romania's scores are still below the EU respective averages, and important planned measures are still to deliver results. Romania is catching up with the EU average on certain business digitalisation indicators. On the other hand, Romania continues to perform poorly on digital basic skills and 5G coverage.

A few developments are worth noting as relevant **contributions towards the objectives of the Digital Decade Policy Programme**.

Law No. 232/2022 regarding the accessibility requirements applicable to products and services, transposing the Accessibility Directive 2019/882, is a step towards making the online participation of persons with disabilities possible. A National Strategy on the Rights of Persons with Disabilities, entitled "A Fair Romania", which covers digital products and services, also entered into force with the approval of Government Decision No. 490/2022.

Romania adopted last year, in the context of its RRP implementation, a **Cyber Security Strategy**, for the period 2022- 2027, as well as an Action Plan to implement it. The Law on cybersecurity and defence of Romania was adopted by the Romanian Parliament on 21 December 2022. Further cybersecurity investments are planned, either under the RRP, or under operational programmes co-funded by ERDF, to ensure cyber protection for both public ICT infrastructure and private infrastructure with critical importance for national security and to improve the cybersecurity skills and capabilities in public and private entities.

Finally, as an example of a digital investment for sustainability, the Romanian RRP finances an innovative digital system to combat illegal logging, a problem that Romania has long been struggling with. The investment covers an integrated IT system deployed over a surface of approximately 70 000 km^2).

During the reporting period the Ministry of Research, Innovation and Digitalisation has been reorganised and now incorporates the Authority for the Digitalisation of Romania, previously under the Prime Minister's office. In the absence of an updated comprehensive digital strategy aligned with the Digital Decade targets, the upcoming national Digital Decade roadmap could be an important tool to monitor Romania's progress in digital.

Digital in Romania's Recovery and Resilience Plan (RRP)

Romania's Recovery and Resilience Plan contributes with EUR 5.97 billion (i.e. 20.5% of Romania's total allocation) to the country's digital transformation. Of this, EUR 4.98 billion is estimated to contribute to the Digital Decade targets[1].

Component 7, worth EUR 1.81 billion, focuses on the digital transformation of the public sector, cybersecurity and connectivity. Reforms such as the 5G security law, the 5G auction and the adoption of the government cloud and interoperability laws are included there. Other relevant measures are in component 4 (digitalisation of transport), component 8 (digitalisation of the tax and pension authorities), component 9 (support for the digitalisation of businesses and for digital R&D), and component 15 (digitalisation of education).

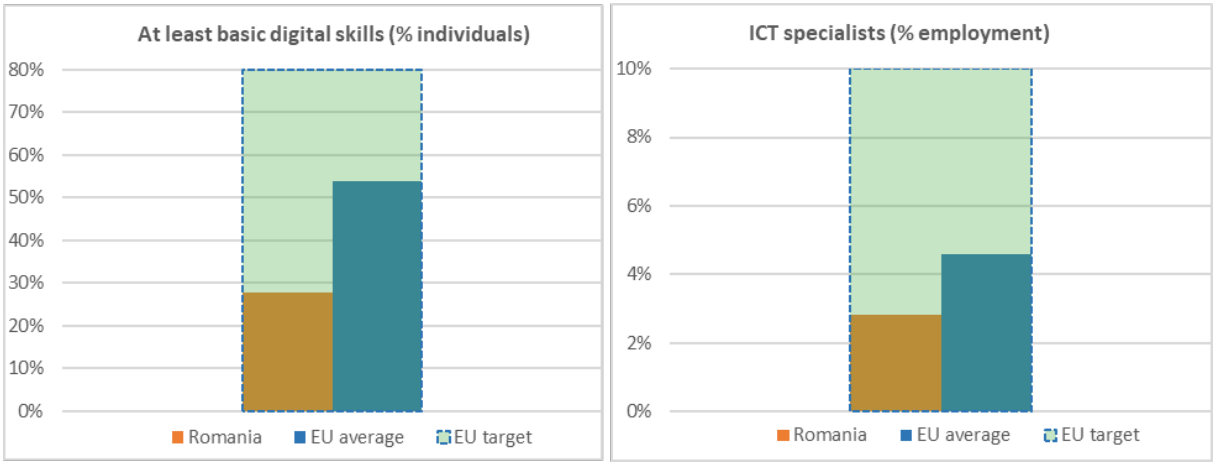
A first payment of EUR 2.6 billion was disbursed to Romania in October 2022, based on the fulfilment of 21 milestones and targets linked to the first instalment. These cover also reforms contributing to the digital transition, in particular, the set up of the Task force for digitalisation, the adoption of the 5G security law and of cybersecurity strategy. The second payment request, with a positive preliminary assessment adopted by the Commission on 27 June[2], covers important deliveries for digital transformation, including the 5G auction, key reforms relevant for the development of a governmental cloud and measures for the digitalisation of education.

[1] Each Recovery and Resilience Plan must dedicate at least 20% of the plan's total allocation to digital objectives. To this end, the plan had to specify and justify to what extent each measure contributes fully (100%) or partly (40%) to digital objectives, using Annex VII of the RRF Regulation. Combining coefficients with the cost estimated of each measure allows assessing to what degree the plan contributes to digital objectives and whether it meets the 20% target. Furthermore, a qualitative assessment of the data took place to allow for an estimation of the possible contribution of the plan to the Digital Decade targets. The information provided refers to the Recovery and Resilience Plan as adopted by the Council before 1 September 2023, without prejudice to potential ongoing revisions of the plan.

[2] C_2023_4438_1_EN_annexe.pdf (europa.eu)

1 Digital skills

	Romania			EU	EU
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	2030 target
1a1 Internet use % individuals	**76%** 2020	**82%** 2021	**84%** 2022	**89%** 2022	
1a2 At least basic digital skills % individuals	**NA**	**28%** 2021	**28%** 2021	**54%** 2021	**80%**
1a3 Above basic digital skills % individuals	**NA**	**9%** 2021	**9%** 2021	**26%** 2021	
1a4 At least basic digital content creation skills % individuals	**NA**	**41%** 2021	**41%** 2021	**66%** 2021	
1a5 Enterprises providing ICT training % enterprises	**6%** 2020	**6%** 2020	**9%** 2022	**22%** 2022	
1b1 ICT specialists % individuals in employment aged 15-74	**2.4%** 2020	**2.6%** 2021	**2.8%** 2022	**4.6%** 2022	**20 million** **~10%**
1b2 ICT graduates % graduates	**6.3%** 2019	**6.7%** 2020	**6.9%** 2021	**4.2%** 2021	



Romania is carrying out several measures in the area of digital skills, but it remains well below the EU average in terms of current results, which represents a risk for the collective achievement of EU's targets.

Only 28% of people have at least basic digital skills, below the EU average of 54% and the EU target of 80%. The gap with the EU average is equally big when it comes to women with at least basic digital skills (26% compared with 52% at EU level). Moreover, only 9% of individuals have above basic digital skills compared with the EU average of 26%. **When compared to EU 2030 targets, these results suggest that Romanian authorities and all the stakeholders involved will need to make significant efforts to narrow these gaps.** Furthermore, a significant change of pace would lead to productivity gains, to a more widespread use of technology across the economy and to higher take-up of public services by citizens.

During the reporting year, several significant measures aimed at developing digital skills have been implemented, including reforms and investments under the Recovery and Resilience Facility (RRF),

projects co-funded by the European Regional Development Fund (ERDF) and by the European Social Fund (ESF). Romania's RRP contribution towards raising basic skills levels is estimated at EUR 760 million, while its contribution towards achieving the ICT specialists target is estimated at EUR 507 million[3].

A new legislative framework for digitalising education was established in 2022. Notably, Minister's Order no. 4150/29.06.2022 set out the digital skills profile for the professionals in education, as well as the mechanism for validating teachers' digital skills in school exams, in line with the European Digital Competence Framework for Educators. Digital education and media skills has been introduced as a new subject for upper secondary education students, starting with academic year 2022/2023, via Order no. 4800/2022. Further Minister's Orders were adopted with the aim of i) improving the continuous training of teachers in pre-university education, the quality assurance of the teachers' professional development programmes, and education, and ii) including a digital component in the vocational and training standards, etc.

Furthermore, various grant schemes, supporting digital skills directly or indirectly, through the provision of infrastructure and equipment, were launched during the reporting year. According to the Romanian authorities, calls for proposals, launched under the RRP during the reporting year, aim at upskilling and reskilling the employees of 2 000 SMEs, and developing the professional and digital skills of students and of teaching and research staff.

Another project aimed at increasing the digital skills of the general public, launched in 2022, involves turning libraries into hubs for developing digital skills in local communities. It aims to provide computer and technical equipment to 1 030 libraries, train 1 100 librarians and 100 000 community members served by applicant libraries.

As regards infrastructure and equipment, a call was launched to establish 10 regional consortia that would develop campus infrastructure for dual education, covering European Qualifications Framework levels 3-8, adapted to the profiles of the high schools and technological higher education institutions. Another one aims at the provision of digital equipment and technological resources for high schools and the creation of at least 1 100 Smart Labs, to support all curriculum areas to develop advanced digital skills. Another call is aimed at providing digital equipment and technological resources for high schools and creating at least 1 100 smart labs to develop advanced digital skills in all curriculum areas.

The country has a low share of ICT specialists: 2.8% of total employment, remaining below the EU average (4.6%), while the share of ICT graduates of 6.9% puts Romania among the EU's leaders. The discrepancy is explained to a large extent by the difficulty **in** retaining talent in Romania. Romania's performance is well advanced as regards women in the digital sector: female ICT specialists represent 25.2% of ICT specialists, against an EU average of 18.9%. Romania's performance in ICT graduates has positive implications for EU's collective efforts to reach the Digital Decade target of 20 million ICT specialists, with an increased gender convergence.

Further measures targeted specifically at increasing the number of ICT specialists include a legislative measure modifying and completing the list of occupations within the national economy, which now lists highly specialist ICT professions (blockchain technology architects, digital game designers and developers, complex data engineer etc.) as well as various measures to increase the attractiveness of

[3] As estimated by the Joint Research Centre (Papazoglou M., Torrecillas J., Cardona M., Calza E., Vázquez-Prada Baillet M., Righi R., *Mapping EU level funding instruments to Digital Decade targets. Application to main digital instruments in 2014-2027*, López Cobo, M. and De Prato, G. editors, Publications Office of the European Union, Luxembourg, 2023, JRC134647, https://publications.jrc.ec.europa.eu/repository/handle/JRC134647

participating in ICT university degree programmes, including the approval of four new ICT specialisations for 2022-2023 academic year.

The private sector involvement in policies aimed at the development of digital skills is still at an early stage but increasing. In terms of purely private initiatives, only 9% of enterprises provide ICT training to their employees, well below the EU average of 22%, although this percentage increased significantly over the past year.

Romania also participated in Code Week 2022, a public-private initiative providing support to increase basic digital skills across Member States. With 2 297 activities organised, most of them (93%) organised in schools, Romania ranked 5th among all participating countries. The activities attracted 79469 participants, 45% of whom were girls. Reinforced action in skills will also generate higher scores for adoption and use of digital technologies and very high capacity networks but will also lead on the long term to high labour force productivity and a more innovative economy.

Best practice: CRED and PROF

In the context of the COVID-19 pandemic, the existing **CRED** project started to support teachers with specific training modules for digital skills improvement (56 615 teachers participated up to April 2023, amounting to 48% of the total number of teachers in primary and secondary education) and with a large-scale continuous training programme for teachers "Digital educational resources: creation, use, and evaluation". Up to present, around 3900 teachers have completed this course and around 8 700 open educational resources have been made available. The training portal had over 2.4 million pages viewed during the last year and over 90 million pages viewed since its launch.

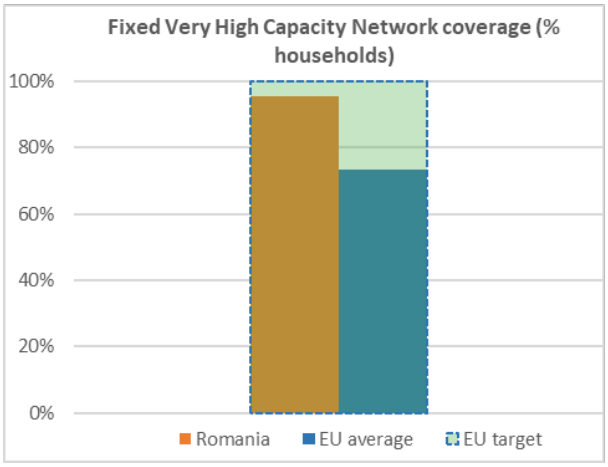
Based on the cooperation between 4 universities and 11 Teachers Resources Centres, the **PROF** project develops interventions for the teachers career mentoring, which include an significant component of digital education: training programs in mentoring and digital skills (2 846 teachers-mentors trained up to December 2022), continuous training of 25 000 teachers by the end of December 2023, by using the e-Prof IT platform and the training programmes for school managers and teachers.

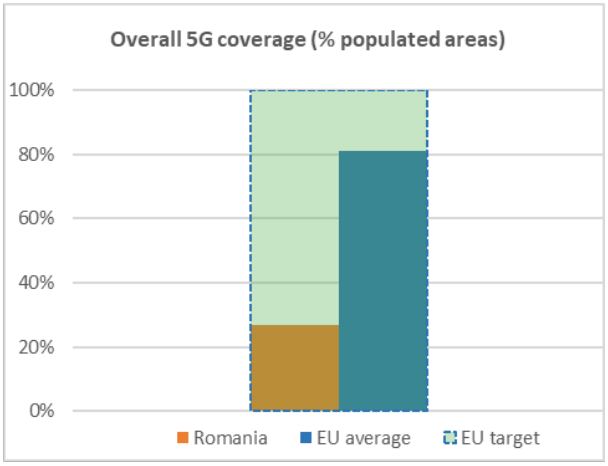
Romania should significantly step up its efforts in the area of digital skills. *In particular, Romania should further involve private stakeholders in the development and delivery of policies for digital skills. Romania should also pay special attention to reinforcing efforts for upskilling and reskilling, as well as to the attraction and retention of ICT specialists*[4]*.*

[4] The recommended policies, measures, and actions in this document reflect the Commission Communication 'Report on the state of the Digital Decade' COM(2023) 570.

2 Digital infrastructures

	Romania			EU	EU
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	2030 target
2a1 At least 100 Mbps broadband take-up	**68%**	**76%**	**81%**	**55%**	
% households	2020	2021	2022	2022	
2a2 At least 1 Gbps broadband take-up	**8.5%**	**18.3%**	**23.3%**	**13.8%**	
% households	2020	2021	2022	2022	
2a3 Fixed Very High Capacity Network (VHCN) coverage	**76%**	**87%**	**96%**	**73%**	**100%**
% households	2020	2021	2022	2022	
2a4 Fibre to the Premises (FTTP) coverage	**76%**	**87%**	**96%**	**56%**	
% households	2020	2021	2022	2022	
2b1 Mobile broadband take-up	**65%**	**82%**	**82%**	**87%**	
% individuals	2018	2021	2021	2021	
2b2 Overall 5G coverage	**12%**	**25%**	**27%**	**81%**	**100%**
% populated areas	2020	2021	2022	2022	
2b3 5G spectrum	**21%**	**22%**	**38%**	**68%**	
Assigned spectrum as a % of total harmonised 5G spectrum	2021	2022	2023	2023	





Digital infrastructure is the area where Romania performs best, already fulfilling one of the pre-conditions for a successful digital transformation and making an exemplary contribution to the EU's digital targets target for Gigabit connectivity for all.

In particular, fixed connectivity is the area where Romania is among EU's frontrunners, and still progressing quickly, with 96% of households having gigabit network coverage. VHCN coverage is at 96% compared with the EU average of 73%. Romania performs the best among Member States on FTTP coverage at 96% compared with an EU average of 56%. Take-up has also developed positively, with 81% of individuals taking up subscriptions of at least 100 Mbps compared with the EU average of 55%, and 23% of individuals taking up connections of at least 1Gbps compared with the EU average of 14%. Prices are rising across all baskets but remain at about half of the EU average. Moreover, some large rural urban disparities remain in some parts of Romania, where rural areas are still below the EU average in terms of VHCN coverage.

The RoNET project was completed in 2022, having brought speeds of up to 10 Gbps to 695 localities that were previously uncovered. The National Regulatory Authority ANCOM is currently mapping the localities still uncovered by VHCN. Currently, it remains to be seen how the commitments under the RRP (worth EUR 94 million) will be met or how the funding from ERDF (EUR 100 million) will be used to cover the remaining white spots.

In terms of market regulation, the market for wholesale dedicated capacity remains deregulated as the retail market for high quality electronic communications services provided at a fixed location was found to be effectively competitive. The market shares of operators in the fixed broadband market, based on lines, remain fairly stable.

The situation is different regarding the 5G rollout, where Romania stands at 27% overall household coverage, the lowest percentage in the EU, where the average is 81% and the EU target is to cover all populated areas. However, most of Romania's 5G coverage is in the 3.6 GHz band, an essential band for enabling advanced applications requiring large spectrum bandwidth, where Romania is covered up to 26%, compared to an EU average of 41%. During the last measurement exercise in 2022, only 22% of the 5G spectrum was allocated but this changed towards the end of the year. Mobile broadband take-up, at 82%, is also slightly below the EU average of 87%. Similar to the fixed broadband market, the mobile broadband market shares, based on active connections has not experienced major changes over the reporting period.

Several notable legal and regulatory developments took place in 2022, relevant to both fixed and mobile connectivity. The Law no. 198/2022, transposing into the national legislation the provisions of the Electronic Communications Code, has entered into force. This new legislative framework revises, among others, the security measures required to be taken by the providers and gives them new responsibilities to inform subscribers about significant threats and ways to protect themselves. Furthermore, it strengthens the regulatory and supervision power of the national regulatory authority (NRA).

Furthermore, Romania has progressed in implementing 12 out of the 39 recommendations included in the broadband cost reduction toolbox at EU level, as part of its RRP. The measures, preliminarily positively assessed by the Commission on 27 June 2023 as part of Romania' second payment request, are expected to be of particular support to the 5G rollout objective, in accordance with security regulations, and provide broadband coverage for white areas.

Notably, as regards 5G rollout, following the transposition of the Code, ANCOM carried out a selection procedure for awarding spectrum usage rights, auctioning off 555 MHz in the 700 MHz, 1500 MHz, 2600 MHz and 3.4-3.8 GHz frequency bands. In the 700 MHz band, three FDD blocks (2x5 MHz each) were awarded (valid during 2023-2047), out of the six FDD blocks and three SDL blocks that were available. In the 3.4 – 3.8 GHz band, 310 MHz TDD were awarded (valid during 2026-2047), out of the 400 MHz available. As regards the 26 GHz band, there was no interest expressed from the market players. The total value of the licence fees amounts to EUR 432.6 million, to be paid in instalments, up to November 2028. The three winners of the spectrum usage rights had coverage obligations imposed on them, including i) coverage of 95% of the (existing and future) highways and modernised railways, ii) coverage of a number of white areas within a period of 6 years, iii) the progressive roll-out of networks in the 3.4-3.8 GHz band, by installing a number of base stations in various categories of urban localities up to 31 December 2033, as well as iv) coverage of all the (existing and future) international airports in Romania.

Moreover, the NRA adopted several regulatory measures to facilitate 5G rollout, including i) indicative tariffs for access to network operators' poles, ii) the identification of main network operators that own, administer or hold as a concession poles that are/could be used by the providers

of public electronic communications networks, iii) indicative access tariffs for specific categories of network operators (e.g. local public transport service) and iv) maximal prices for access to public property real estate.

However, doubts remain regarding the expected rollout of 5G vis-à-vis the 2030 target, and some of the coverage obligations run until 2033. Among the potential reasons are general affordability in the consumer market and the current lack of a clear local business case for verticals. The good FTTP coverage was also invoked by stakeholders as a possible reason for potential lack of demand. The situation observed and the expectations described represent a clear risk to the achievement of the Digital Decade target of full 5G coverage by 2030.

All in all, Romania is very well placed to reach the Gigabit target early on, due to a mix of favourable market dynamics and public intervention, including regulation and funding. However, for the time being, and in spite of having caught up on 5G spectrum assignment and of several other regulatory measures put in place to facilitate rollout, there is a real risk of Romania not reaching the 2030 5G target.

With respect to the semiconductor target, Romania takes part participates in several European projects and initiatives, in particular the Important Project of Common European Interest (IPCEI) on Low-power processors and semiconductor chips, with a current budget allocation of EUR 500 million under its RRP.

Romania is involved in the EuroQCI initiative to build a pan European quantum communication infrastructure and is developing further competences in quantum.

Best practice: RO-NET

The RO-NET project, worth EUR 85 million, co-financed by ERDF, rolled out almost 5 000 km of fibre to cover 695 localities in rural areas of Romania, bringing them potential speeds of 10 Gbps, as well as six radio towers in the Danube Delta. These localities represent over 30% of the areas considered white at the start of the project. Other operators than those that were involved in rolling out the dark fibre now need to provide last mile connections to the end users, with 60 operators being reported as active at present in this respect. The long-term impact is estimated at 120 000 households being connected thanks to this project.

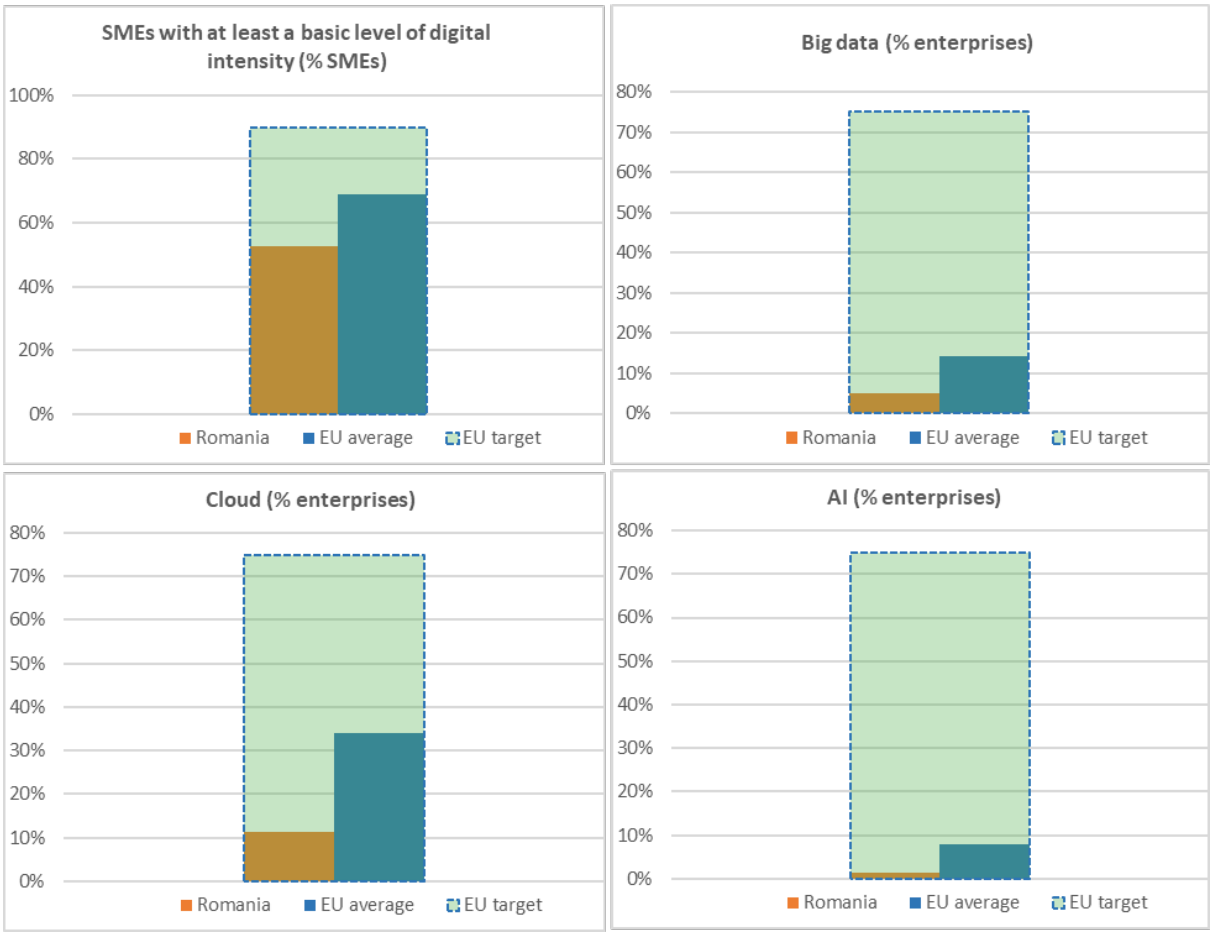
***Romania should accelerate its efforts on connectivity infrastructure**, notably on the roll-out of 5G connectivity, exploring all available sources of financing to shoulder private investments in the areas which are not commercially viable.*

Romania's efforts in the area of semiconductors and quantum should be sustained in order to help the EU become a strong market player in these areas.

3 Digitalisation of businesses

	Romania			EU	EU
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	2030 target
3a1 SMEs with at least a basic level of digital intensity	**NA**	**NA**	**53%**	**69%**	**90%**
% SMEs			2022	2022	
3b1 Electronic information sharing	**24%**	**17%**	**17%**	**38%**	
% enterprises	2019	2021	2021	2021	
3b2 Social media	**8%**	**12%**	**12%**	**29%**	
% enterprises	2019	2021	2021	2021	
3b3 Big data	**5%**	**5%**	**5%**	**14%**	**75%**
% enterprises	2020	2020	2020	2020	
3b4 Cloud[5]	**NA**	**11%**	**11%**	**34%**	**75%**
% enterprises		2021	2021	2021	
3b5 AI	**NA**	**1%**	**1%**	**8%**	**75%**
% enterprises		2021	2021	2021	
3b6 e-Invoices	**17%**	**17%**	**17%**	**32%**	
% enterprises	2020	2020	2020	2020	
3c1 SMEs selling online	**17%**	**12%**	**10%**	**19%**	
% SMEs	2020	2021	2022	2022	
3c2 e-Commerce turnover	**8%**	**7%**	**8%**	**11%**	
% SME turnover	2020	2021	2022	2022	
3c3 Selling online cross-border	**6%**	**4%**	**4%**	**9%**	
% SMEs	2019	2021	2021	2021	

[5] Enterprises buying sophisticated or intermediate cloud computing services indicator, see Digital Economy and Society Index (DESI) 2023 Methodological Note.



There is a significant untapped potential regarding Romania's performance on the digitalisation of businesses and its contribution to the collective efforts to reach EU's targets in this area. The scores for the adoption of advanced digital technologies are particularly low: adoption of AI is at 1% compared with an EU average of 8%; adoption of cloud services is at 11% compared with the 34% EU average; and big data is at 5% compared with 14%. It is to be recalled that the Digital Decade calls for the adoption of advanced technologies by 75% of businesses. As regards the percentage of SMEs with a basic level of digital intensity, the gap with the EU is not as wide as for the other indicators (53% versus the 69% EU average; and against a 2030 EU level target of 90%). There was progress over the last year concerning enterprises that sell online and concerning the E-Commerce turnover; and there are early signs of convergence, although Romania does still score below the EU average across all these indicators.

The RRP's overall contribution to the take-up of advanced digital technologies is estimated at EUR 119.8 million and the contribution for the 90% basic digital intensity target is estimated at EUR 359.5 million. Further funding is available under the ERF for both the previous (2014-2020) and current (2021-2027) programming periods.

Moreover, 7 of the 12 digital innovation hubs pre-selected by the Romanian authorities have been selected by an EU-restricted call under the Digital Europe Programme to become part of a network of European Digital Innovation Hubs (EDIHs) and have already received their funding. EDIHs help SMEs and local public authorities (LPAs) address digital challenges and improve business/production processes and products/services using digital technologies. Their main support is in (i) identifying investors, (ii) training in acquiring digital skills, (iii) testing before investment, and (iv) creating an ecosystem for innovation and networking. Co-funding under the ERDF is envisaged.

A new artificial intelligence strategy is currently being prepared by the government, within the framework of the existing 2022–2027 National Strategy for Research, Innovation and Smart Specialisation (approved through Government Decision No 933 of 20 July 2022). Special attention will be paid to developing trustworthy, robust, secure and safe AI systems, as well as to the transparency of algorithms, diversity, equity and the contribution to social well-being. Moreover, a Romanian Committee for Artificial Intelligence is currently being operationalised and will serve as a support organisation and a single point of contact and information regarding AI opportunities in Romania.

A notable project is **the Romanian Artificial Intelligence Hub,** a recipient of ERDF funding of over EUR 52 million and a multi-stakeholder project that will create the collaborative means to leverage AI resources (particularly high-performance computation and open access to training data pools) at the national and international levels. In particular, it will be used to finance the projects of Romanian researchers, joint research projects with internationally renowned institutes, etc. It will also find AI solutions to help citizens and generate start-up and spin-off projects.

As regards the unicorns Digital Decade target, two Romanian companies have been reported as having the potential to achieve unicorn status (i.e. with a valuation of between EUR 100 million and 1 billion). The Romanian ICT sector is one of the five most important sectors of the economy in terms of employment. Its real annual growth rate is significantly above that of the economy as a whole (on average 15% during 2014-2020) and it makes a significant contribution to Romania's GDP growth, (contributing approximately three times more than one would expect given its share of the overall economy). However, it is not yet sufficiently innovation-driven and is largely reliant on outsourcing by foreign companies[6]. Romania's total R&D intensity is the lowest in the EU (at 0.48% of GDP) and is far below both the EU average of 2.27% and Romania's own target of 2%. The level of public R&D is particularly low. Innovation activity and R&D absorption capacity at company level remain limited[7]. The ecosystem density of start-ups is relatively low and the scaling-up of innovative domestic firms is hindered by the limited size of the local venture capital market. Romania is one of the EU top performers in terms of productivity growth, but the productivity level of the Romanian economy is still well below the EU average.

Measures are being taken to tackle this issue. For example, the 2014-2020 Competitiveness Operational Programme includes measures to develop digital innovation clusters as well as a more innovation-driven ICT sector.

Furthermore, several relevant regulatory and legal developments were reported. The **Investment and Development Bank was established in 2022** through Government Decision No. 1204/2022, as a credit institution, wholly owned by the Romanian state throughout its operational period, through the Ministry of Finance. **Law No 179/2022 regarding open data and the reuse of the public sector information** entered into force, transposing Directive (EU) 2019/1024. It facilitates open access to public administration data, the reuse of data for R&D processes and the development of new products and information services. The national open data portal data.gov.ro is aligned with EU practices, including on licensing and the application profile for data portals. Romania is considered a

[6] ANIS - Studiu privind impactul industriei de software si servicii IT

[7] Business enterprise expenditure on R&D (BERD) has been stagnating in recent years and, at 0.29% of GDP, is around a fifth of the EU average of 1.53% in 2020.

follower in terms of open-data maturity, with an improved rating in 2022 and scoring relatively well on policy governance, portal feature usage and sustainability, and impact awareness[8].

Further measures carried out under the RRP are expected to make it easier for businesses to operate. The Emergency Government Ordinance No. 140/2022 on the single industrial license, as well as the Government Ordinance No. 18/2022 regarding the authorisation and operation in Romania of the representative offices of foreign companies and economic organisations can help achieve this. Further relevant measures under the RRP (e.g. a platform for stimulating the competitiveness of the business environment, ensuring legislative transparency, reducing administrative burden and procedural simplification) are expected to be completed in 2024.

Some relevant measures are under way, but further measures to support the digitalisation of businesses, digital innovation and more generally the ecosystem of start-ups (including facilitating SMEs' access to finance) are needed to contribute well to the EU targets and catch up with the EU averages. Progress would also significantly improve the competitiveness of the Romanian ICT sector and of the economy as a whole.

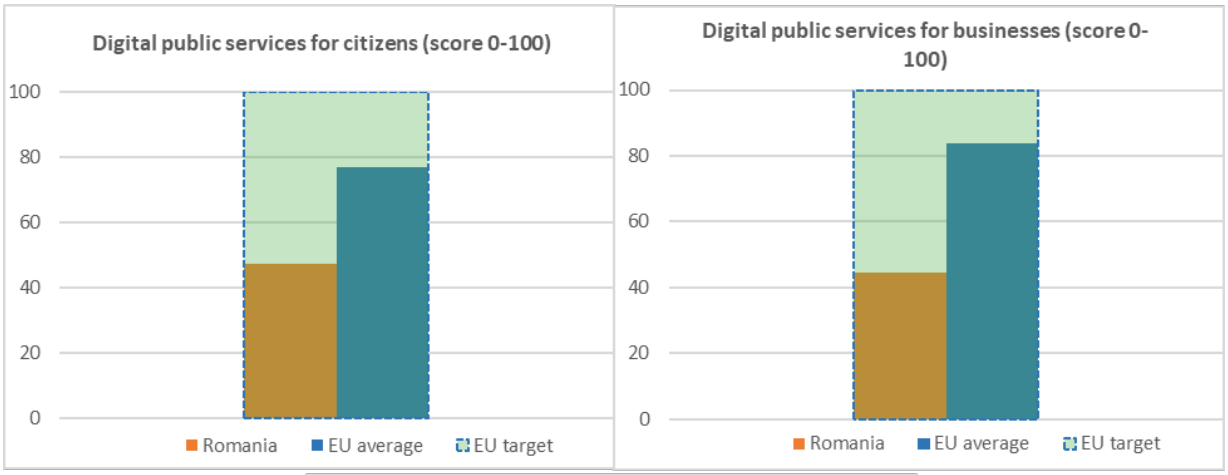
Best practice: ION
The Romanian Government launched ION, the first governmental counsellor based entirely on artificial intelligence at the start of 2023. ION will capture public opinion and inform the members of the cabinet accordingly. It will also raise awareness of the potential and benefits of innovative digital technologies.

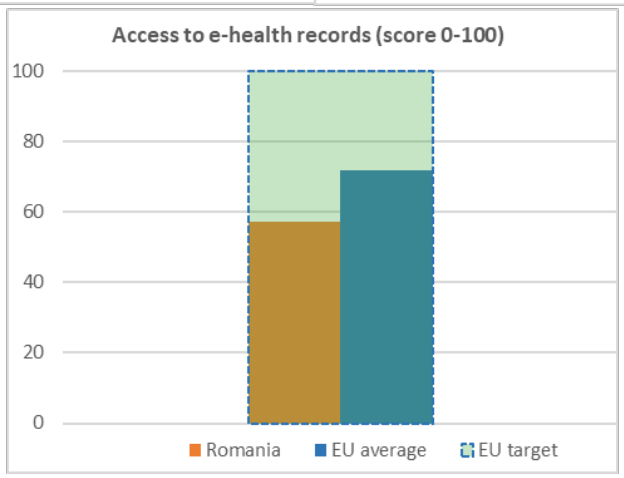
Romania should significantly step up its efforts in the area of digitalisation of businesses*. In particular, Romania should scale-up measures to support the digitalisation of businesses and help create a business environment with a stronger focus on innovation.*

[8] https://data.europa.eu/sites/default/country-factsheet_romania_2022.pdf

4 Digitalisation of public services

	Romania			EU	EU
	DESI 2021	DESI 2022	DESI 2023	DESI 2023	2030 target
4a1 e-Government users % internet users	**NA**	**NA**	**24%** 2022	**74%** 2022	
4a2 Digital public services for citizens Score (0 to 100)	**NA**	**44** 2021	**48** 2022	**77** 2022	**100**
4a3 Digital public services for businesses Score (0 to 100)	**NA**	**42** 2021	**45** 2022	**84** 2022	**100**
4a4 Pre-filled forms Score (0 to 100)	**NA**	**19** 2021	**41** 2022	**68** 2022	
4a5 Transparency of service delivery, design and personal data Score (0 to 100)	**NA**	**41** 2021	**44** 2022	**65** 2022	
4a6 User support Score (0 to 100)	**NA**	**72** 2021	**68** 2022	**84** 2022	
4a7 Mobile friendliness Score (0 to 100)	**NA**	**75** 2021	**77** 2022	**93** 2022	
4b1 Access to e-health records Score (0 to 100)	**NA**	**NA**	**57** 2022	**72** 2022	**100**





A series of major reforms and investments aimed at the digital transformation of public services were initiated under the RRP in 2022, in accordance with the 2021–2027 strategic framework for the adoption and use of innovative technologies in the public administration.

Romania's performance in this area remains however still to be improved. Only 24% of internet users use e-Government services, compared with the EU average of 74%. Romania scores 48 on digital public services for citizens compared with the EU average of 77. Similarly, the score for digital public services for business is 45, below the EU average of 84 but catching up with it. These rather low scores are consistent across the various dimensions of the eGovernment Benchmark study (i.e. user support, mobile friendliness, transparency of service delivery, design and personal data, and pre-filled forms).

The Romanian RRP has contributed an estimated EUR 1 570 million to the digital transformation of government. In terms of important developments over the past year, Interoperability Law No 242 of 20 July 2022 entered into force and is expected, in the medium term, to significantly improve the quality of public service, traceability and transparency. In accordance with the 'once-only principle', once the national interoperability platform is implemented, public institutions will no longer have the right to request information that can be found on the national interoperability platform and the citizen's physical presence at the counter will be gradually reduced. Furthermore, essential digital public services will also be available cross-border.

Furthermore, Government Emergency Ordinance No 89 of 28 June 2022 on the establishment, administration and development of cloud IT infrastructures and services used by public authorities and institutions has created the legal framework for the government's cloud platform. The ordinance

clarifies the various competences and addresses concerns regarding citizens' privacy and transparency regarding access to data by public institutions.

These measures have laid the foundations for a profound digital transformation of the public sector. If well implemented, they can lead to integration and interoperability of services; uniformity and accessibility of data sets for digital use; enhanced management and security of information; improved cooperation of state institutions with citizens; and better management of policies in support of social welfare and environmental protection.

Further measures are being implemented in this area and are expected to benefit citizens and business in the short and medium terms. Two examples are: (i) the development of an electronic public procurement system, which operationalises standard e-forms for the publication of public procurement notices; and (ii) the development of the Technology Interoperability System with the Member States, which will be based on the construction of the e-IDAS node for Romania, interconnecting it with the e-IDAS nodes of the other Member States and with the Romanian providers of identity and electronic services.

As regards the e-ID target, Romania has not yet notified any e-ID schemes under the e-IDAS Regulation by Romania, but one pre-notification is in progress. The current EUR 200 million RRF funded investment is expected to deliver up to 8.5 million electronic identity cards by 2026 and authorised digital signatures.

These cards will make it easier for citizens to access various electronic services, thus significantly simplifying their relationship with public authorities, and increasing the quality and accessibility of public services. Romania is also involved via public and private entities in two large-scale pilot projects that are testing the European Digital Identity Wallet in a number of everyday use cases (funded under the Digital Europe Programme with an overall grant request of approximately EUR 0.4 million). Furthermore, a Centralised Software Platform for Digital Identification (PSCID) is being developed, co-funded by the ERDF and expected to be delivered by the end of 2023. The expected result is a national registry of electronic identities, which are to be interconnected with the e-IDAS node and with the catalogue of e-government services.

With a score of 57, Romania ranks 23 in the EU regarding access to electronic health records (the EU average score is 71). The country has implemented a centralised access service for citizens that includes electronic patient summary data (identification, personal information, allergies, current diagnoses, medicines, procedures) except for information on medical devices and implants. Both public and private primary healthcare providers as well as pharmacies provide relevant health-related data accessible by citizens. Furthermore, e-prescription and e-dispensation information as well as hospital discharge reports are available to citizens. However, laboratory test results, medical imaging reports and medical images are not available. It is estimated that between 40% and 59% of the national population are technically able to use the national access service. Citizens can access their electronic health records by logging in to an online portal using two-factor authentication with a nationally notified e-ID scheme. Access via a dedicated mobile app is not available. In view of the target of 100% citizen access to electronic health records, Romania should make further efforts to roll-out access services across the entire population, including disadvantaged groups, and to different types of healthcare providers. Moreover, citizens would benefit from having updated health data available and having access to electronic results and reports other than discharge reports.

Furthermore, in relation to the e-health target, **the National Health Insurance House (NHIH) is currently implementing an e-prescription project,** co-funded under ERDF, to create prescriptions that are recognised and can be issued in all Member States. This is expected to be delivered by June 2025. Moreover, the NHIH is, in partnership with the Special Telecommunications Service (STS) and

the Authority for the Digitalisation of Romania, setting up a computer system for connecting to the DES (Electronic Health Record), thus bringing together all actors involved in a medical act (including the providers of paraclinical, clinical, physical and rehabilitation services, home healthcare, home palliative care, dentistry, medical devices, assistive devices and technology, emergency consultations at home and unassisted medical transport activities). The project will extend the existing system which already brings together medical data at the level of primary care, hospitals and the main national insurance institutions (i.e. SIUI, SIPE and CEAS). In addition, the RRP includes significant investment in e-Health infrastructure and telemedicine services connecting patients and caregivers.

All these investments are a major opportunity to improve Romania's performance in the digital transformation of government and to bring significant benefits to citizens and businesses, once implemented effectively**.**

Best practice: Ghiseul.ro
Several ongoing projects are gaining traction and illustrating the benefits of e-government services to citizens and businesses in terms of simplification and limiting administrative burden. 'Ghiseul.ro' is a nationwide payment platform and an online app that is implemented by the ADR and the Romanian Electronic Payments Association. It allows citizens to view and pay fees, taxes, fines, etc. online. 400 types of payments can be made with it and 1.8 million citizens and businesses have used the platform so far. In the first 3 months of 2023, 75 public institutions started using the platform to receive payments, and 250 000 end users registered – thus indicating that the platform is becoming increasingly successful.

Romania should step up its efforts to digitalise public services*. In particular, it should continue to implement the planned measures swiftly and effectively, including via the RRP, as they represent a major opportunity for the digital transformation of government, with significant benefits for citizens and businesses.*