Digital Economy and Society Index (DESI) 2021

Latvia

About the DESI

The European Commission has monitored Member States' progress on digital and published annual Digital Economy and Society Index (DESI) reports since 2014. Each year, the reports include country profiles, which help Member States identify areas for priority action, and thematic chapters providing an EU-level analysis in the key digital policy areas.

In 2021, the Commission adjusted DESI to reflect the two major policy initiatives that will have an impact on digital transformation in the EU over the coming years: the Recovery and Resilience Facility and the Digital Decade Compass.

To align DESI with the four cardinal points and the targets under the Digital Compass, to improve the methodology and take account of the latest technological and policy developments, the Commission made a number of changes to the 2021 edition of the DESI. The indicators are now structured around the four main areas in the Digital Compass, replacing the previous five-dimension structure. 11 of the DESI 2021 indicators measure targets set in the Digital Compass. In future, the DESI will be aligned even more closely with the Digital Compass to ensure that all targets are discussed in the reports.

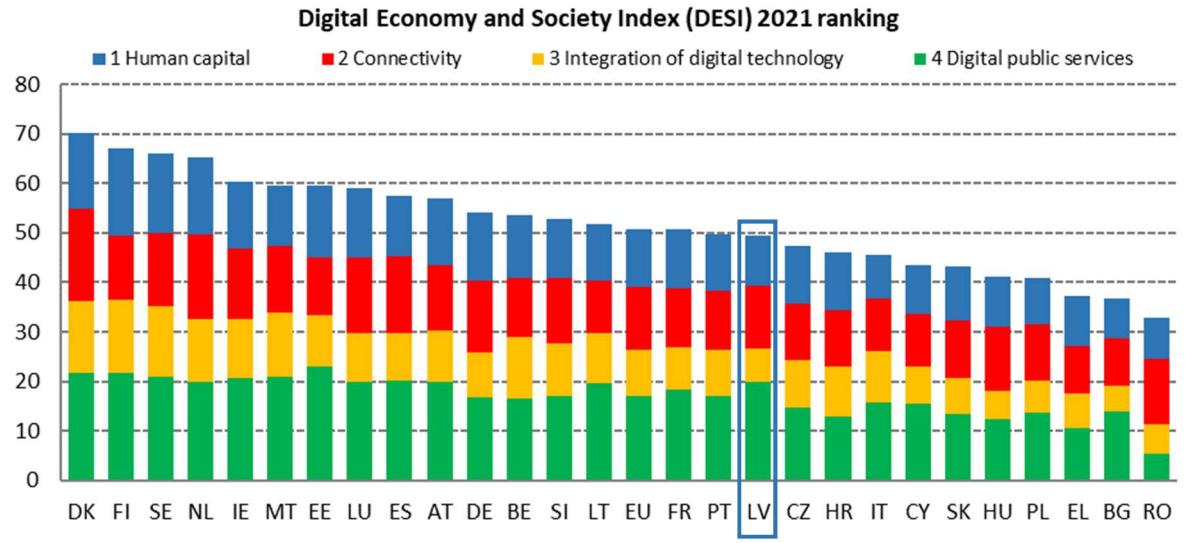
In addition, DESI now includes an indicator measuring the level of support that adopted ICT technologies provided companies in taking more environmentally-friendly measures (ICT for environmental sustainability) and the take up of gigabit services, plus the percentage of companies offering ICT training and using e-invoicing.

The DESI scores and rankings of previous years were re-calculated for all countries to reflect the changes in the choice of indicators and corrections made to the underlying data.

For further information, see the DESI website: https://digital-strategy.ec.europa.eu/en/policies/desi.

Overview

	Latvia		EU
	rank	score	score
DESI 2021	**17**	**49.5**	**50.7**



Latvia ranks 17th among the 27 EU Member States in the 2021 edition of the Digital Economy and Society Index (DESI).

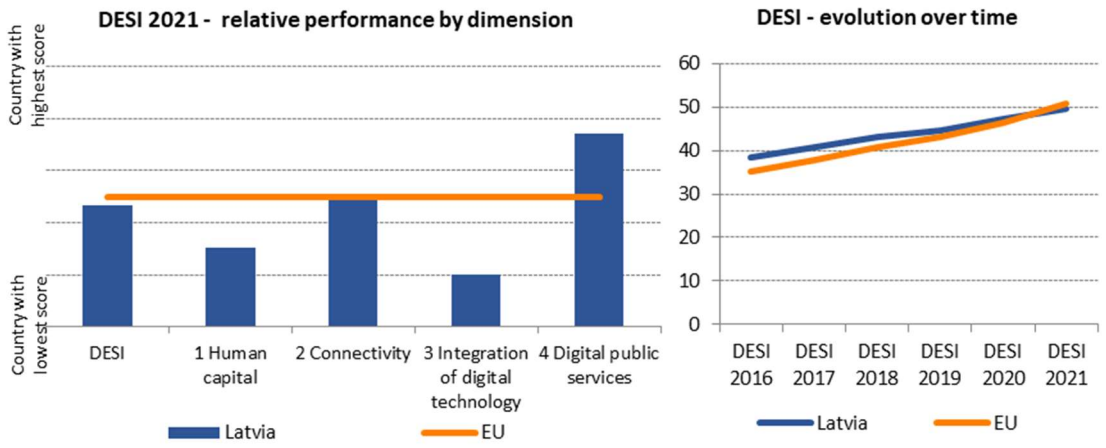
Latvia is a front-runner in broadband coverage and take-up and is well prepared for the 5G roll-out. The country's main strengths are the extremely advanced coverage of fast broadband (NGA) (93% against the EU average of 87%) and the fact that 39% of households subscribe to at least 100 Mbps broadband, compared to the EU average of 34%, even though fixed broadband take-up is generally low. Latvia has almost complete 4G coverage (99.9%) and has already allocated a radio spectrum for 5G. The digital divide is still present, despite extensive investment in middle-mile connections in rural regions. There has been no private investment in last-mile connections due to a lack of commercial viability; public funds are therefore needed to ensure fast internet access in rural regions.

Latvia performs well in the provision of Digital public services. The number of e-government users continues to increase and the provision of online public services has further improved. The government adopted its 2020-2023 Public Service Development Plan, which aims for: proactive service provision; a user-centric approach built around key life events; coordinated and integrated service design; cross-border services; digital-by-default and digital-first principles.

Latvia scores below average in Digital skills, with over half of its population still lacking basic digital skills. However, the country's performance is above average when it comes to ICT graduates and female ICT specialists. Latvia is also reducing the gap for ICT specialists, representing 3.7% of total employment versus the EU average of 4.3%. The shortage of digital skills is a key obstacle to more widespread use of digital solutions by the private sector; almost half of Latvian firms that tried to fill vacancies for digital specialists encountered difficulties.

Latvian businesses are capable of taking greater advantage of the opportunities offered by digital technologies. The country ranks 23rd for the integration of technology by business. While Latvian companies are catching up in the use of cloud services with an 18% share, only 9% use big data, only 19% have social media activities, only 11% of SMEs sell online and only 7% of SMEs' turnover comes from e-commerce.

On 6 July 2021, Latvia adopted its 'Digital Transformation Guidelines for 2021-2027'[1]. This is an overarching strategy for the country's digital transformation, covering ICT education and skills, internet access, modern and efficient public administration, e-services and digital content for society. Other guidelines have been developed in specific areas, i.e. for education from 2021 to 2027 ('Future skills for the society of the future'), focusing on ICT education and skills.



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

Latvia's Recovery and Resilience Plan, with a budget of EUR 1,826 million, includes measures addressing all key challenges. It is an adequate response to the economic and social situation, and strengthens Latvia's growth potential. The plan includes almost EUR 384 million (21% of the total budget) to tackle the main digital challenges:

- The plan addresses the lack of digital skills by training public officials, students, teachers, professionals and ICT specialists. It includes investments to improve availability of ICT equipment and provide digital skills for people with special programmes for youth, low educated and unemployed.
- Investments and reforms in the *Digital Infrastructure Transformation* address the insufficient rural connectivity with investments in last-mile connectivity and physical infrastructure in 5G corridors.
- Targeted measures in the *Digital transformation and innovation of businesses* aim to enhance digitalisation capacities through a broad spectrum of actions, such as: establishing a European Digital Innovation Hub (EDIH); a digital one-stop-shop; grants and financial instruments to support the digital transformation of businesses, including research and innovation, training and advanced technologies.

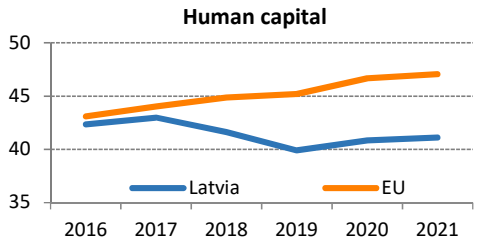
[1] Latvian Digital Transformation Guidelines 2021-2027, draft: https://www.varam.gov.lv/lv/digitalas-transformacijas-pamatnostadnes-2021-2027gadam

- Measures in the *Digital transformation of public administration including municipalities* is expected to maintain and improve Latvia's performance.

Latvia's plan comprises five multi-country projects on digital, including the network of EDIHs, the Via Baltica 5G corridor, the IPCEI Microelectronics and Communication Technologies, the IPCEI Next Generation Cloud Infrastructure and Services (IPCEI-CIS) and Genome Europe.

1 Human capital

1 Human capital	Latvia		EU
	rank	score	score
DESI 2021	20	41.1	47.1



	Latvia			EU
	DESI 2019	DESI 2020	DESI 2021	DESI 2021
1a1 At least basic digital skills % individuals	**48%** 2017	**43%** 2019	**43%** 2019	**56%** 2019
1a2 Above basic digital skills % individuals	**27%** 2017	**24%** 2019	**24%** 2019	**31%** 2019
1a3 At least basic software skills % individuals	**49%** 2017	**44%** 2019	**44%** 2019	**58%** 2019
1b1 ICT specialists % individuals in employment aged 15-74	**2.6%** 2018	**3.1%** 2019	**3.7%** 2020	**4.3%** 2020
1b2 Female ICT specialists % ICT specialists	**19%** 2018	**24%** 2019	**23%** 2020	**19%** 2020
1b3 Enterprises providing ICT training % enterprises	**11%** 2018	**18%** 2019	**17%** 2020	**20%** 2020
1b4 ICT graduates % graduates	**5.0%** 2017	**4.7%** 2018	**4.4%** 2019	**3.9%** 2019

Latvia ranks 20th among the 27 EU countries for Human capital, below the EU average. Only 43% of the population aged 16 to 74 have at least basic digital skills, versus the EU average of 56%. Latvia fares better and is above the EU average when it comes to ICT graduates, with 4.7% against 3.8%. Its share of female ICT specialists stands at 23%, against 19% at EU level. The gap with the EU average for ICT specialists is narrowing, as they represent 3.7% of total employment compared to the EU average of 4.3%.

2020-2021 has been a time of policy planning. Latvia has identified the development of digital skills at all levels as a national priority in its Digital Transformation Guidelines 2021-2027[2], as highlighted by the OECD review 'Going Digital in Latvia'[3]. The government's mid-term education and skills strategy is part of its Guidelines for the Development of Education 2021-2027: Future skills for the society of the future. Other sectoral policies address the development of digital skills, such as the Implementation Plan on an Adult Education Governance Model, which is in force until 2023 and which has also created the Adult Education Governance Board. Since 2020, the Training Commission of the Ministry of Welfare has outlined broader 'Digital skills' among the priority fields for the courses organised by the State Employment Agency. A change in existing adult education and training for the workforce is necessary to introduce a needs-based approach to the training offer, with an emphasis on digital skills.

[2] Latvian Digital Transformation Guidelines 2021-2027, draft: https://www.varam.gov.lv/lv/digitalas-transformacijas-pamatnostadnes-2021-2027gadam
[3] OECD publication 'Going Digital in Latvia': https://www.oecd-ilibrary.org/science-and-technology/going-digital-in-latvia_8eec1828-en

Improving digital skills will be the key objective for the unemployed in Massive Open Online Courses (MOOCs) and courses and modules offered by higher and vocational educational institutions. Activities to improve digital skills among unemployed people and jobseekers will be available through traditional classroom courses and new MOOCs and ICT modular learning.

Projects such as Women4IT or Improving the Professional Competence of Employees (2017-2023) are helping strengthen advanced digital skills and increase the number of ICT graduates and female ICT specialists.

In 2020, 6,000 employees of state and municipal institutions participated in training and communication activities organised by the Ministry of Environmental Protection and Regional Development; these launched the Project on Integrated Communication and Learning Activities 'My Latvija.lv. Do it digitally!'. The Latvian Information and Communications Technology Association, together with IT Cluster, kicked off the project 'Training of ICT professionals to promote innovation and the development of the industry'; this aims to train 1,400 digital specialists in the latest ICT technologies. Funded by the European Regional Development Fund (ERDF), the project is expected to increase competitiveness in external markets and support ICT skills development in the ICT industry, non-technological innovations and training to attract investors.

In 2021, Latvia received additional React-EU ERDF funding for the digital transformation of enterprises, including digital skills of employees in SMEs and large enterprises. In 2021, the Latvian Information and Communications Technology Association continued to implement the project 'Support for small and micro ICT skills development and implementation' in the fields of digital technology, digitalisation of internal processes and digital tools for manufacturing and development of services. Through this project, employees of small and micro enterprises and self-employed people can update their skills to handle new technologies.

In December 2020, the Ministry of Education and Science concluded a memorandum of cooperation, 'Young Internet for all Latvian Schools', with the Latvian Association of Local and Regional Governments, major state communication operators, Riga Technical University, LLC 'MicroNets', etc. to implement technological solutions in every school. In 2020, the Minister of Education and Science purchased thousands of laptops, smartphones and tablets to facilitate distance learning, also accepting some donations.

Activities that started in recent years have progressed. The revised general education curriculum (School2023/Skola2023[4]) has been implemented since the academic year 2019/2020. It highlights the importance of digital literacy, coding and algorithmic thinking skills; digital literacy is viewed as a transversal skill to be integrated throughout the general education cycle. From pre-school children to secondary education, students learn to use digital technologies in computing, design and technology, advanced coding or specialised courses in digital design or robotics.

The general education curriculum also applies to initial vocational education programmes. Modernising vocational education includes developing modular programmes that are responsive to the current labour market, including digital transformation.

The Latvian National Digital Skills and Jobs Coalition, the 'eSkills Partnership', comprises Latvian public bodies, private companies and non-governmental organisations active in supporting digital skills and the digital transformation.

In 2020 and 2021, the Coalition organised nationwide digital skills development and awareness campaigns, Digital Week 2020 in March 2020 and Digital Week 2021 in March 2021, each involving

[4] https://www.skola2030.lv/lv

over 150 partners. The Coalition has also promoted digital transformation skills for SMEs, as well as discussions on their financing and development. In 2021, the Latvian National Coalition will update its priorities for 2021-2030.

During the 2020 CodeWeek, partners organised online programming lessons, hackathons or contests such as 'Meet and Code', which awarded EUR 400 to implement innovative programming activities. 70 out of 90 registered activities (five per 100,000 inhabitants) were developed in primary schools and 42% participants were women. In September 2020, the improved learning content came into force with compulsory computer classes.

The low skills level of the workforce has been holding back Latvia's digital transformation. The new policies for reskilling and upskilling the population and increasing the number of ICT specialists, while continuing to reduce the gender gap, will help Latvia boost its economy.

Highlight 2020-2021: MOOC - Digital skills, key for future developments

Latvia has recently set the development of digital skills as a national priority. The MOOC initiative provided by Latvia's State Employment Agency (SEA) was introduced in 2020/2021.

In 2020, the SEA, in cooperation with local and international learning platforms, began offering free-of-charge open online courses to the unemployed and jobseekers until the end of 2020, giving access to skills certification. Within 6 months, over 1,850 persons had participated in the initiative. In the second half of 2020, digital skills courses were among the most popular ones. In addition, 4,000 SEA clients on average participate every year in ICT formal learning.

ICT-related fields such as computer science, data science and information technology were added in 2021. MOOC will be supported by a vouchers scheme with a post-payment of EUR 150. It will be financed through the State budget and the European Social Fund within the project 'Support for Education of Unemployed Persons'.

Human capital in Latvia's Recovery and Resilience Plan

Latvia's Recovery and Resilience Plan will address the lack of digital skills in most age groups, social and work environments. The measures entirely or partially related to digital skills have a combined budget support of EUR 106 million, comprising 6% of the whole RRP.

The five investments focusing on the digital transformation of society and the labour market will allocate over EUR 71 million, as follows:

- EUR 17 million to help professionals and learners acquire advanced digital skills.
- EUR 20 million for key digital skills in enterprises.
- EUR 7.6 million for self-accompanied training of ICT specialists through non-formal education.
- More than EUR 14 million to develop individual learning accounts for adults.
- 'Digital skills for citizens including young people' will disburse over EUR 12.5 million for technological innovation activities and the acquisition of advanced digital self-service skills.

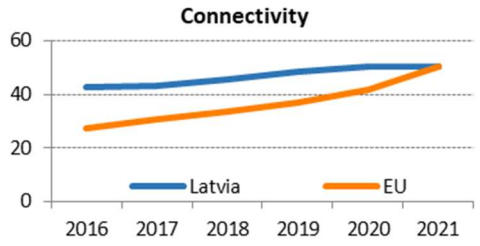
Two measures that include provisions for the aim to reduce the risks of social exclusion by improving digital skills for students and adults, with EUR 26.5 million, are:

- Participation in the labour market by the unemployed, jobseekers and people at risk of unemployment.
- The project to close the digital divide for socially vulnerable learners and educational institutions, which will make ICT equipment available to target groups through a 'computer library'.

The plan allocates €8.25 million to a measure aimed at increasing the digital skill levels of over 60,000 public administration employees, to support the digital transformation the public administration.

2 Connectivity

2 Connectivity	Latvia		EU
	rank	score	score
DESI 2021	14	50.4	50.2



	Latvia			EU
	DESI 2019	DESI 2020	DESI 2021	DESI 2021
2a1 Overall fixed broadband take-up % households	60% 2018	64% 2019	62% 2020	77% 2020
2a2 At least 100 Mbps fixed broadband take-up % households	32% 2018	38% 2019	39% 2020	34% 2020
2a3 At least 1 Gbps take-up % households	NA	<0.01% 2019	<0.01% 2020	1.3% 2020
2b1 Fast broadband (NGA) coverage % households	93% 2018	93% 2019	93% 2020	87% 2020
2b2 Fixed Very High Capacity Network (VHCN) coverage % households	88% 2018	88% 2019	88% 2020	59% 2020
2c1 4G coverage % populated areas	98.6% 2018	>99.9% 2019	>99.9% 2020	99.7% 2020
2c2 5G readiness Assigned spectrum as a % of total harmonised 5G spectrum	33% 2019	33% 2020	29% 2021	51% 2021
2c3 5G coverage % populated areas	NA	NA	0% 2020	14% 2020
2c4 Mobile broadband take-up % individuals	56% 2018	65% 2019	65% 2019	71% 2019
2d1 Broadband price index Score (0-100)	NA	77 2019	81 2020	69 2020

With an overall connectivity score of 50.4, Latvia ranks 14th among EU countries. Latvia's strength is its near-complete fast broadband coverage, coupled with near-complete 4G coverage and good very-high capacity network (VHCN) coverage. Coverage of fixed networks capable of providing services of 30 Mbps remains stable at 93% of all households. Latvia performs above the EU average on VHCN, although coverage of FTTP (Fibre to the Premises) remained at 88% in 2020, without any significant progress in the past 5 years. Rural VHCN coverage has also stagnated at 73% (compared to 28% at EU level) of households since 2018. However, the country completely lacks 5G coverage, scoring 29% in terms of 5G readiness, even though the complete 3.4-3.8 GHz band was awarded on technical conditions suitable for 5G in 2018 and limited commercial 5G services are available in the cities of Jelgava and Daugavpils.

Overall fixed broadband take-up stands at 62% of all households, below the EU average of 77%. Uptake of households subscribing to offers of at least 100 Mbps was 39% in 2020, slightly above the EU average (34%) but falling short of the EU target of 50% of households. There is no take-up of at least

1 Gbps connections. Take-up of mobile broadband is higher at 65% in 2020, but below the EU average (71%).

Overall, broadband prices in Latvia are consistently lower than the EU average, with a price index of 81 compared to 69 at EU level. With 135 mobile subscriptions per 100 people in 2020, Latvian households confirm the trend towards fixed to mobile substitution.

The next broadband strategy for 2021-2027 is still in preparation; meanwhile, Latvia has made good progress on the national broadband strategy goals for 2013-2020, which include the Digital Agenda for Europe targets and the Gigabit Society objectives. Closing the digital divide between urban and rural areas was one of its main objectives, but deploying the last mile (connection to the premises) in white areas (areas that lack connection) remains a challenge. Through the 'middle mile' project, fibre, particularly backhaul infrastructure, has been deployed up to the last mile in white areas. Due to low income and population scarcity in rural areas, network providers have little commercial interest in deploying the last part of the connection up to the premises. At national level, efforts will be made to find an appropriate model to reach territories not covered by the current State aid programme. The objective is to bring the middle mile as close to end-users, schools and public services as possible, making the deployment of the last mile more economically attractive for operators.

Latvia was a front-runner in preparations for 5G deployment but is now lagging behind at EU level as no significant developments were made in the past years. The auction of the 700 MHz band, initially planned for 2020, was delayed for end of 2021 due to unresolved concerns regarding frequency sharing. In the meantime, on 30 March 2021, the national regulatory authority (SPRK) gave the green light to Bite and Tele2 for partial sharing of their frequencies as of 31 March 2021. According to the decision, the two operators could share a total of 44% of their acquired spectrum, so as not to affect competition between them and the third operator that holds licences in that band. It also allowed the two operators to jointly use their infrastructure, such as towers, masts, equipment and base stations[5]. SPRK later annulled the decision after requests by both operators. The operators then withdrew their request to share frequencies and changed to network-sharing of base stations, towers, masts, active equipment and other radio network access elements without sharing of frequencies[6].

The 26 GHz band has not been allocated due to a lack of demand. However, 1 GHz is available on a first-come, first-served basis.

The Via Baltic 5G corridor project is still in the planning phase[7]. It aims to promote connected automated driving and support sustainable mobility, including improving road safety through innovation. Moreover, 5G roll-out along the Via Baltica route will improve the interconnection of connected vehicles and connect the Baltic States with other essential European transport corridors.

Main market & regulatory developments
The Latvian market is characterised by a high share of mobile subscriptions and high competition between the fixed incumbent and the mobile operators. For that reason, the fixed incumbent,

[5] SPRK atļauj SIA "Tele2" un SIA "Bite Latvija" sadarbību mobilo sakaru frekvenču izmantošanā, 30.03.2021.
[6] Tele2 un Bite Latvija attīstīs tīkla koplietošanu bez frekvenču kopīgas izmantošanas, 21.05.2021.
[7] In September 2018, transport ministers from the Baltic States signed a memorandum of understanding on the development of connected and automated driving and 5G technologies along the Via Baltica corridor.

Tet, is expanding into other market segments such as electronic devices and TV, but also infrastructure construction and electricity (business-2-business).

On 4 February 2021, the Commission addressed a Letter of formal notice to Latvia for its failure to notify transposition measures for the European Electronic Communications Code. Latvia confirmed the partial transposition of the Code to the extent that secondary regulation and decisions necessary for the adoption of the legal draft have been issued. The second public consultation round on the final draft of the transposed European Electronic Communications Code has been concluded and is ready to go to the Parliament. The complete transposition is expected in November 2021.

The national regulatory authority, SPRK has introduced fees for the allocation of numbers to increase the efficient use of numbering ranges that have been free of charge until now.

In its roadmap to implement the Connectivity Toolbox[8], Latvia announced plans to simplify the permit-granting procedure for building electronic communications networks. The aim is to assess the possibility for tacit approval and a fast-track procedure for rights of way, further develop the single information point and simplify deployment of small cells. A working group has been established to evaluate the environmental footprint of electronic communications networks.

SPRK noted that trends in consumer complaints did not differ significantly from the previous year, but that there was a slight increase in complaints relating to quality of service (27%) compared to 2019 (22%). As mobile operators have also noted, these complaints are related to the increased use of mobile services due to the pandemic. Households typically rely on mobile connections and are experiencing more capacity constraints.

SPRK identified several caller identification (CLI) spoof cases that include falsely transmitting a different number on the receiving parties' caller identification screen. For example, personal data has been acquired from individuals by falsely transmitting public telephone numbers used by banking institutions. SPRK is assessing possible measures against this specific fraudulent use of numbers.

While there is wide availability of very high broadband speeds, households do not make use of them; public policy initiatives can incentivise the take-up of the available very high speeds. Latvia was among the front runners on 5G, with early awards of the important 5G spectrum in the 3.4-3.8 GHz band, but deployment of 5G has stagnated in recent years. In the medium to long term, considering the delays in assigning the 700 MHz band, which is crucial for 5G and important for coverage, Latvia risks falling further behind at EU level. The utilisation of RRF is expected to address further network roll-out in the already advanced market and help to create the necessary economic incentives for investment in the identified gaps in white areas.

Connectivity in Latvia's Recovery and Resilience Plan

Latvia's Recovery and Resilience Plan includes two measures on connectivity infrastructures, with a combined budget of EUR 16.5 million, accounting for 4% of the RRP digital budget. They will

[8] https://digital-strategy.ec.europa.eu/en/policies/connectivity-toolbox

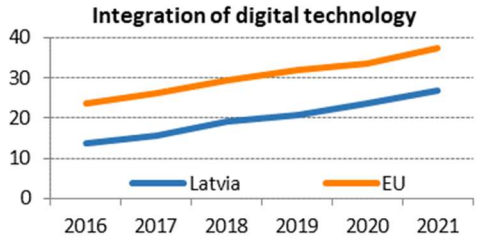
address last-mile connectivity in rural areas and passive infrastructure on the Via Baltica 5G corridor.

- The broadband or VHCN last-mile infrastructure development measure foresees to provide connectivity to 1,500 households, businesses, schools, hospitals and other public buildings in rural areas. It has a budget of EUR 4 million.
- Construction of passive infrastructure on the Via Baltica corridor for 5G coverage: the investment of EUR 12.5 million, aims to ensure 100% fibre backhaul availability along the Latvian part of the Via Baltica corridor, as well as the necessary physical infrastructure to provide 5G coverage.

The Via Baltica corridor seeks to link Latvia, Estonia, Lithuania, Finland and Poland by providing uninterrupted 5G coverage on the main paths.

3 Integration of digital technology

3 Integration of digital technology	Latvia		EU
	rank	score	score
DESI 2021	23	26.8	37.6



	Latvia			EU
	DESI 2019	DESI 2020	DESI 2021	DESI 2021
3a1 SMEs with at least a basic level of digital intensity % SMEs	NA	NA	42% 2020	60% 2020
3b1 Electronic information sharing % enterprises	25% 2017	32% 2019	32% 2019	36% 2019
3b2 Social media % enterprises	13% 2017	19% 2019	19% 2019	23% 2019
3b3 Big data % enterprises	8% 2018	8% 2018	9% 2020	14% 2020
3b4 Cloud % enterprises	11% 2018	11% 2018	18% 2020	26% 2020
3b5 AI % enterprises	NA	NA	21% 2020	25% 2020
3b6 ICT for environmental sustainability % enterprises having medium/high intensity of green action through ICT	NA	NA	65% 2021	66% 2021
3b7 e-Invoices % enterprises	7% 2018	7% 2018	15% 2020	32% 2020
3c1 SMEs selling online % SMEs	10% 2018	11% 2019	11% 2020	17% 2020
3c2 e-Commerce turnover % SME turnover	5% 2018	5% 2019	7% 2020	12% 2020
3c3 Selling online cross-border % SMEs	5% 2017	7% 2019	7% 2019	8% 2019

Latvia ranks 23rd among EU countries in the integration of digital technology in enterprises, which is still well below the EU average in almost all categories. The share of SMEs with at least a basic level of digital intensity is 42%, while the EU average is 60%. Even though Latvian companies have increased their use of cloud services, the use of big data is progressing slowly. The share of companies using cloud services is 18%, a notable increase from 11% last year, but only 9% of enterprises use big data and only 19% have activities on social media, which is below the EU average. Regarding e-commerce, only 11% of SMEs sell online and only 7% of SMEs' turnover is from e-commerce.

Latvia uses different measures to support its growing start-up ecosystem. The law on aid for the activities of start-ups established a support programme to recruit highly skilled workers and provide personal income tax relief for start-up employees. In addition, subsidies and loans are available to business start-ups in rural areas to promote digital innovation or the development of new products and services. The loans programme is targeted at start-ups in the agricultural, rural and fisheries sectors.

Latvia continues to use the Competence Centre and other complementary programmes such as the technology transfer programme to promote innovation in SMEs. Other support measures for the digitalisation of enterprises include training programmes organised by the Latvian Information and Communications Technology Association, and the EU co-funded development project for SME training in digital technologies and innovation.

The Ministry of Environmental Protection and Regional Development and the Ministry of Economics have nominated two Digital Innovation Hubs. The Latvian IT Cluster will focus on the digital transformation of enterprises using available digital solutions; the digital accelerator of Latvia will focus on R&D and innovative digital solutions. Both hubs, which involve public and private stakeholders, plan to be part of the network of European Digital Innovation Hubs and provide the infrastructure for prototyping.

The digital transformation strategy stated in the Latvian Digital Transformation Guidelines 2021-2027[9] will cover the integration of digital technology, alongside ICT education and skills. The national AI strategy promotes artificial intelligence in education and science, in the public sector and in the wider economy. It aims to integrate automation and artificial intelligence in all sectoral strategies.

Latvia participates in several EU initiatives. It is a member of the EuroHPC Joint Undertaking, has signed the Declaration on European Blockchain Partnership and the EU Declaration on Cooperation in Artificial Intelligence, and has announced its intention to participate in the EuroQCI project. It is also launching the Latvian National Federated Cloud, focusing on interoperability between the government and academic clouds and integration into the European federated cloud to implement cross-border services and access HPC resources.

Latvia has improved in some categories, but still performs below the EU average in all of them. The integration of digital technologies is mainly hampered by a lack of investment in R&D, a lack of digitally skilled employees and insufficient connectivity in rural areas.

Integration of digital technology in Latvia's Recovery and Resilience Plan

Latvia's Recovery and Resilience Plan includes five investments linked to the digitalisation of businesses, with an added budget support of EUR 125 million aiming to create a competitive environment to boost digitalization and innovation.

The plan includes:

- Support for the establishment of European Digital Innovation Hubs (EDIHs) and Regional Contact Points, dedicating EUR 10 million to transform the business ecosystem and support companies on digitalization, including testing, mentoring, training and upskilling.
- A measure targeting the digitalisation of processes in commercial activities, which will provide EUR 40 million of support to companies.
- EUR 24 million in aid for businesses to introduce new digital products and services.
- EUR 45 million in financial instruments to facilitate the digital transformation of economic operators and provide grants to companies attracting private investment.
- EUR 5.7 million to foster the digital transformation of media companies by supporting new platforms and digital solutions.

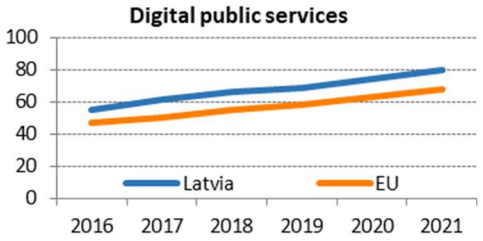
[9] Latvian Digital Transformation Guidelines 2021-2027, draft: https://www.varam.gov.lv/lv/digitalas-transformacijas-pamatnostadnes-2021-2027gadam

Under the plan, there are also investments in the deployment of advanced technologies. Latvia aims to invest additional 12.5 million in its National Federal Cloud.

Latvia would also take part in some multi-country projects and thereby supporting the development of key digital capacities in the EU, such as the network of EDIHs, and the IPCEIs on Cloud and on Microelectronics.

4 Digital public services

4 Digital public services	Latvia		EU
	rank	score	score
DESI 2021	10	79.6	68.1



	Latvia			EU
	DESI 2019	DESI 2020	DESI 2021	DESI 2021
4a1 e-Government users % internet users	**78%** 2018	**80%** 2019	**85%** 2020	**64%** 2020
4a2 Pre-filled forms Score (0 to 100)	**NA**	**NA**	**82** 2020	**63** 2020
4a3 Digital public services for citizens Score (0 to 100)	**NA**	**NA**	**87** 2020	**75** 2020
4a4 Digital public services for businesses Score (0 to 100)	**NA**	**NA**	**85** 2020	**84** 2020
4a5 Open data % maximum score	**NA**	**NA**	**80%** 2020	**78%** 2020

Latvia ranks 10th in the EU for digital public services and scores above the EU average in all categories. It ranks 6th (85% of internet users) for its share of e-government users, far exceeding the EU average of 64%. Latvia also ranks 6th for pre-filled forms, with a score of 82, and for digital public services for citizens, scoring 87 (EU average of 75). It is also slightly above the EU average in digital public services for businesses, on 85. The maturity of open data has increased to 80%, but the EU average has approached Latvia's level, scoring 78% for this indicator, and Latvia has dropped from 10th to 18th in the ranking.

In 2020, the government adopted a new methodology for transforming the public service to develop the public administration service system and set its policy strategy. It organised focus group discussions, usability tests and surveys to build a user-centric approach to digital public services.

Digital skills among public employees and availability of ICT tools are essential to deliver quality digital public administration services. The Learning and Development Strategy for Public Administration 2021-2027 covers the future development of civil servants, including their digital skills. Latvia envisages reforms to remove barriers for the efficient exchange of the public administration's ICT resources to improve their efficiency and quality, and to promote the development of specialised centres of competence that provide shared ICT services. Latvia also aims to enable public authorities to procure innovative solutions, including AI-based systems (Interreg Europe project 'iBuy') or running AI testbeds for autonomous vehicles.

Following the Web Content Accessibility Guidelines (WCAG) 2.0, which make recommendations for chatbots, text-to-speech and speech-to-text technologies, Latvia added easier access for people with

disabilities via the automated translation service of the national platform of digital language tools and technologies, HUGO.LV [10].

During 2020, largely due to the COVID crisis, over 2,000 residents per day engaged in conversations with digital assistants on e-government websites on various topics. The COVID-19 pandemic also contributed to the introduction of state-funded telemedicine services (doctor-patient consultations) starting from March 2020. Although the Public Health Guidelines 2021-2027 are in place, the Ministry of Health is working on a Healthcare Digitalisation Strategy for 2022-2027.

The Ministry of Environmental Protection and Regional Development has developed a network of 122 State and Municipal Unified Customer Service Centres, where citizens can receive public services. These centres facilitate the development of citizens' digital skills, their staff assist citizens with the provision of e-services, and the centres provide 28 authorised e-services for non-digital groups. The total number of services registered in these centres (applications, support for application of e-services, support for users of the portal Latvija.lv) has increased by 26% compared to last year.

Latvia continues to perform well in digital public services and is in the leading group in e-Government users, pre-filled forms and digital public services for citizens. However, it is only slightly above the EU average in digital public services for businesses, indicating that there is still room for improvement in this area.

Digital public services in Latvia's Recovery and Resilience Plan

Latvia's Recovery and Resilience Plan dedicates more than EUR 123 million to Digital public services. The digital transformation of public administration, including municipalities comprises three measures focused on modernising governance and data strategy:

- Administration modernisation and digital transformation of services, including the business environment, which provides more than EUR 24 million to develop ICT solutions for modernised public administration functions.
- EUR 70 million for supporting centralised governance platforms and systems.
- Data availability, sharing and analysis, allocating close to EUR 22 million to develop data on the national economy and to develop the digital services economy.

Latvia will take part in the IPCEI of Common European data infrastructure and services (including the Cloud Federation).

[10] HUGO.LV (https://hugo.lv/en), the e-government language technology platform developed by Tilde, provides automated translation, speech recognition and speech synthesis, as well as various tools for multi-language support for e-services. It will operate in all European languages from 2022.