

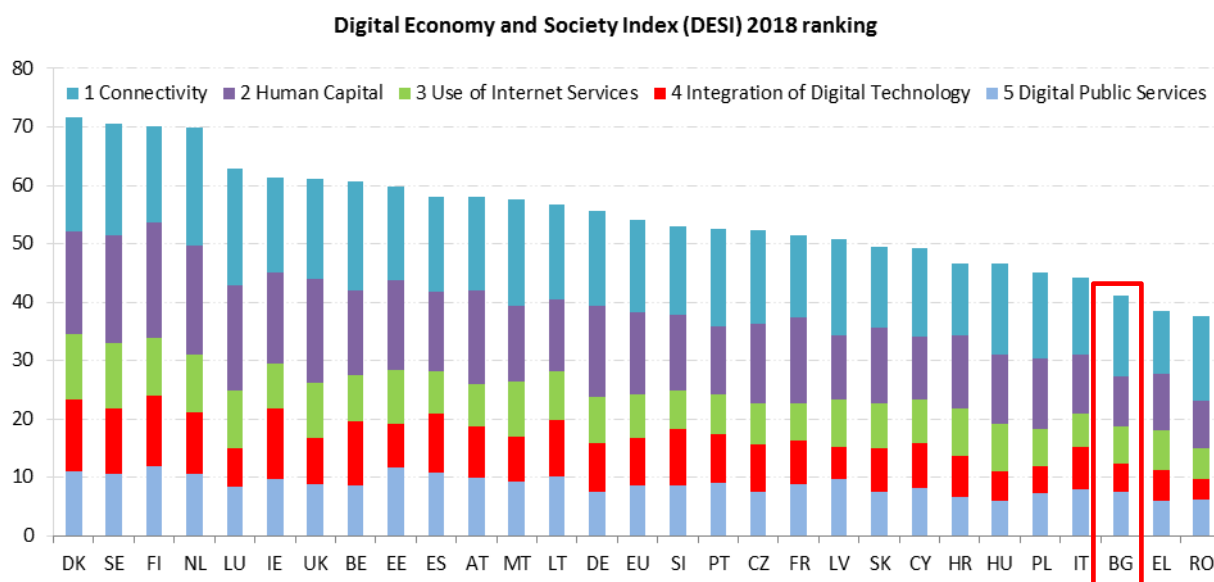
Digital Economy and Society Index (DESI)¹ 2018

Country Report Bulgaria

The DESI report tracks the progress made by Member States in terms of their digitisation. It is structured around five chapters:

1 Connectivity	Fixed broadband, mobile broadband and prices
2 Human Capital	Internet use, basic and advanced digital skills
3 Use of Internet Services	Citizens' use of content, communication and online transactions
4 Integration of Digital Technology	Business digitisation and e-commerce
5 Digital Public Services	eGovernment and eHealth

The DESI was re-calculated for the previous years for all countries to reflect slight changes in the choice of indicators and corrections to the underlying indicator data. As a result, country scores and rankings may have changed from the previous publication. For further information please consult the DESI methodological note at <https://ec.europa.eu/digital-single-market/en/desi>.



¹ <https://ec.europa.eu/digital-single-market/en/desi>

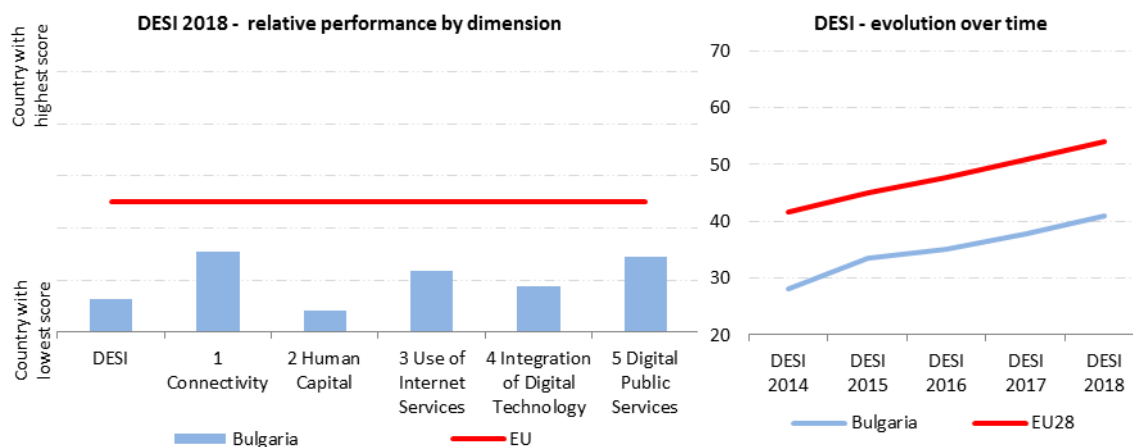
	Bulgaria		Cluster	EU
	rank	score	score	score
DESI 2018	26	41.0	43.5	54.0
DESI 2017	26	37.7	40.4	50.8

Bulgaria ranks 26th out of the 28 EU Member States in DESI 2018. Overall, Bulgaria has retained its ranking from last year with some slight improvements to its score.

Compared to last year, Bulgaria made progress in connectivity and the availability of digital services. In particular digital public services improved, resulting in an increased number of e-government users. Bulgaria’s main challenges relate to the very low level of digital skills among its citizens — also among young people — and the low integration of digital technologies by businesses. In particular, the low level of digital skills combined with shortages of ICT specialists and underinvestment in digital infrastructures may be among the reasons why the digitisation process in Bulgaria is slow both in the public and private sector.

Bulgaria has a Broadband strategy², an e-skills strategy³ and a plan for implementing the latter (2015-2017)⁴, a concept for the digital transformation of industry⁵ and an e-government strategy⁶.

Bulgaria belongs to the low-performing cluster of countries⁷.



² <https://www.mtitc.government.bg/en/category/46/next-generation-access-ngn>.

³ http://mon.bg/upload/6543/strategia_efektivno_ikt_2014_2020.pdf.

⁴ http://mon.bg/upload/6544/2015_Plan_Strategia_IKT_vnedrjavane.pdf.

⁵ https://www.mi.government.bg/files/useruploads/files/ip/kontseptsia_industria_4.0.pdf.

⁶ https://www.mtitc.government.bg/sites/default/files/uploads/pdf/e_governance_strategy.pdf (EN).

⁷ Low-performing countries are Romania, Greece, Bulgaria, Italy, Poland, Hungary, Croatia, Cyprus and Slovakia.

1 Connectivity

1 Connectivity	Bulgaria		Cluster	EU
	rank	score	score	score
DESI 2018	25	54.9	55.0	62.6
DESI 2017	23	51.6	50.1	58.5

	Bulgaria				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
1a1 Fixed Broadband Coverage % households	95% → 2017	23	95% 2016	23	97% 2017
1a2 Fixed Broadband Take-up % households	59% ↑ 2017	26	57% 2016	27	75% 2017
1b1 4G Coverage % households (average of operators)	72% ↑ 2017	28	66% 2016	26	91% 2017
1b2 Mobile Broadband Take-up Subscriptions per 100 people	87 ↑ 2017	16	82 2016	13	90 2017
1c1 Fast Broadband (NGA) Coverage % households covered by VDSL, FTTP or Docsis 3.0	75% ↑ 2017	23	74% 2016	22	80% 2017
1c2 Fast Broadband Take-up % homes subscribing to >= 30Mbps	39% ↑ 2017	15	31% 2016	15	33% 2017
1d1 Ultrafast Broadband Coverage % households covered by FTTP or Docsis 3.0	75% 2017	12	NA		58% 2017
1d2 Ultrafast Broadband Take-up % homes subscribing to >= 100Mbps	6.5% ↑ 2017	23	4.7% 2016	22	15.4% 2017
1e1 Broadband Price Index Score (0 to 100)	80 ↑ 2017	20	76 2016	20	87 2017

Bulgaria ranks 25th in the connectivity dimension of DESI 2018. A small increase for most of the connectivity-related indicators can be observed in Bulgaria. However, this trend is minor and slower than in other EU countries, which drags Bulgaria's overall ranking down compared with last year. Furthermore, its low performance in most of the other connectivity indicators slows down the further development of Bulgaria's digital economy and society.

The total coverage of fixed broadband networks in Bulgaria remains unchanged at 95 % of households, slightly below the EU average (97 %). Broadband take-up has grown slightly to 59 %, but remains far below the EU take-up average of 75 %. On 4G coverage Bulgaria is lagging behind the EU average (91 %) at just 72 %. Take-up of mobile broadband has improved slightly to 87 % and is getting closer to the EU mobile take-up average of 90 %. Networks capable of providing at least 30 Mbps (next-generation access, or NGA) are available to 75 % of Bulgarian homes, slightly below the EU average (80 %). It is worth mentioning that take-up of fast broadband has risen considerably to 39 %, above the EU average of 33 %. Furthermore, Bulgaria has made remarkable progress on ultra-fast broadband coverage (FTTP or Docsis 3.0), reaching 74.6 %, while the EU average is 58 %. However, the take-up of ultra-fast broadband is only 6.54 %, while the EU average is 15.4 %. On the positive side, from the perspective of promoting take-up, the fixed broadband price

index⁸ is 80, while the EU average is 87. Nevertheless, because other EU countries are progressing faster for most of the other indicators, Bulgaria remains in a group of countries that are developing rather slowly as regards connectivity.

Only a small part of the spectrum harmonised at EU level for broadband use has been assigned in Bulgaria. This is partially due to the delays in making available some crucial spectrum below 1 GHz for electronic communication services, combined with the lack of commercial interest in some other frequency bands. Finally, the low take-up of fixed broadband might be explained by the subscription price combined with other reasons such as different social interests, consumers' preferences for broadcasting products, the relatively low levels of digital skills and the ageing population in some remote areas.

Bulgaria's 2014 broadband strategy, the 'National Broadband Infrastructure for Next Generation Access Plan' (NBP), sets targets for coverage and take-up rate targets, both in line with the Digital Agenda for Europe. However, additional measures are needed to increase customers' interest and to realise the NBP's objectives. The deployment costs should further diminish in order to decrease the digital divide. The tax deduction measures put in place are insufficient to encourage the majority of households to take up higher bandwidths. Despite healthy competition on the market among generally stable players, further efforts are needed to decrease the price levels. It is also essential to combine private financing and financial instruments with European, national and municipal grants in order to achieve the NBP goals, but cooperation between different actors aimed at aggregating demand is not going smoothly and most projects are stuck. Bulgaria does not yet have a 5G strategy, but a dedicated working group was launched in 2017 to revise the NGA plan in order to include it. The new NBP is expected in 2018, with target date of 2030.

Bulgaria is lagging behind the EU average on 4G coverage. The efforts initiated in 2016 to release spectrum in the 800 MHz and 700 MHz bands remained at a standstill, while more difficulties arose in the 1.8 GHz band. Swift, additional efforts to release those bands could hugely improve the deployment of high-quality wireless broadband services in Bulgaria. Furthermore, a 5G strategy is expected to be rapidly included in the NBP and Bulgaria is supposed to ensure that appropriate spectrum is made available in a timely manner to all relevant market players for early 5G trials and deployment. Moreover, focusing more intensively on deploying broadband in rural areas and on developing digital skills and digital services would decrease the digital divide and benefit the country's overall connectivity, in particular for NGA coverage and take-up. Following the decision to refer Bulgaria to the CJEU, Bulgaria finally notified complete transposition of the Broadband Cost Reduction Directive in early 2018, which should improve and speed up broadband roll-out.

⁸ The Broadband Price Index measures the prices of 12 representative broadband baskets as the percentage of household income. The baskets include three speed categories (12-30 Mbps, 30-100 Mbps and at least 100 Mbps) and four types of products (standalone internet, internet + TV, internet + fixed telephony and internet + TV + fixed telephony).

2 Human Capital

2 Human Capital	Bulgaria		Cluster	EU
	rank	score	score	score
DESI 2018	27	34.8	42.2	56.5
DESI 2017	27	31.1	40.6	54.6

	Bulgaria				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
2a1 Internet Users % individuals	62% 2017	↑ 27	58% 2016	27	81% 2017
2a2 At Least Basic Digital Skills % individuals	29% 2017	↑ 27	26% 2016	28	57% 2017
2b1 ICT Specialists % total employment	2.7% 2016	↑ 20	2.3% 2015	22	3.7% 2016
2b2 STEM Graduates⁹ Per 1000 individuals (aged 20-29)	13.9 2016	↓ 21	14.2 2014	22	19.1 2015

In the Human Capital dimension, Bulgaria is progressing slowly. The overall level of digital skills is among the lowest in the EU and it is very diverse among different socio-economic groups. Despite an increase in the number of people with at least basic digital skills from 26 % in 2017 to 29 % in 2018, Bulgaria remains among the lowest-performing countries in the EU. This is also linked to the low number of people using internet, accounting to 62 % of all 16-74 year olds.

An e-skills strategy was elaborated in 2014¹⁰, setting out ways to modernise the education system, improve access to quality education and increase the offer of IT training in formal and non-formal education. More concrete measures were defined in the Plan for Implementation of the Strategy for 2015-2017. Since 2015, a government law regulates IT training in schools. The first IT training courses were carried out in first and fifth grade in 2016-2017; they will continue in seventh grade in 2017-2018 and then gradually be extended in the coming years.

A reform of the higher education system aimed at increasing performance and labour market relevance is ongoing. A list of 32 priority professional fields has been defined in order to prioritise funding in public universities. This includes fields related to science, technology, engineering and mathematics (STEM), in particular ICT and mathematics. In 2018, the number of STEM graduates decreased slightly compared to 2017, but this still remains a positive element compared to the other dimensions of the human capital index. Cedefop found a mismatch between the increasing demand for high-skilled engineering professionals in emerging sectors and a decrease in supply, with the number of STEM students declining

⁹ The most recent data has been used in DESI 2018. It may refer to 2016 or 2015 depending on the Member State. This is reflected in the 2018 DESI ranking. Historical data has been updated by Eurostat.

¹⁰ http://mon.bg/upload/6543/strategia_efektivno_ikt_2014_2020.pdf.

and graduates often lacking job-specific skills¹¹. Finally, ICT specialists account for 2.7 % of total employment (1 percentage point less than the EU average).

It is worth noting that the Bulgarian Digital National Alliance¹² continues to carry out several activities for increasing digital skills levels. These activities target different segments of the population, for example young children, girls, or elderly people, and take place in partnership with the private sector, education providers and international stakeholders.

At the same time, several IT companies have set up corporate academies offering digital skills training in order to address the shortages of advanced digital skills in Bulgaria.

Bulgaria would benefit from an updated action plan laying down the measures needed to fully implement the e-skills strategy.

Highlight 2018: Programme EDUCATION FOR IT CAREERS

Education for IT careers is a national programme set up by the Ministry of Education and Science to complement upper secondary school education. The aim is to encourage more students to learn programming, irrespective of the subjects they are studying, while giving the possibility of acquiring an additional Vocational education and training (VET) qualification for a very in-demand profession.

The programme targets pupils in the 10th-12th grades who are interested in improving their digital skills and eventually acquiring a complementary qualification as ‘applied programmer’.

Courses are provided by five ‘software centres’ in Bulgaria, i.e. upper secondary schools that work in cooperation with IT business and higher education institutions, each coordinating another 10-15 schools nearby. The training courses will last 3 years and the learning content is developed in collaboration with representatives from the IT industry. The lectures and exercises will take place outside of school hours — either on-site or online. At the end of the training, the students will sit a state examination in order to obtain certificates for the professional qualification ‘application programmer’. The training is free of charge.

The programme implementation will be monitored by a body established by the Ministry of Education and Science.

¹¹Cedefop Skills Panorama (2017):
<http://skillspanorama.cedefop.europa.eu/en/countries/bulgara>

¹² <https://www.digitalalliance.bg/en-home>.

3 Use of Internet Services

3 Use of Internet Services	Bulgaria		Cluster	EU
	rank	score	score	score
DESI 2018	26	41.7	41.0	50.5
DESI 2017	26	38.6	38.7	47.5

	Bulgaria				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
3a1 News % individuals who used Internet in the last 3 months	74% 2017	↑ 20	68% 2016	21	72% 2017
3a2 Music, Videos and Games % individuals who used Internet in the last 3 months	64% 2016	28	64% 2016	28	78% 2016
3a3 Video on Demand % individuals who used Internet in the last 3 months	8% 2016	23	8% 2016	23	21% 2016
3b1 Video Calls % individuals who used Internet in the last 3 months	85% 2017	↑ 1	80% 2016	1	46% 2017
3b2 Social Networks % individuals who used Internet in the last 3 months	79% 2017	↑ 5	76% 2016	6	65% 2017
3c1 Banking % individuals who used Internet in the last 3 months	9% 2017	↑ 28	7% 2016	28	61% 2017
3c2 Shopping % individuals who used Internet in the last 12 months	27% 2017	→ 27	27% 2016	27	68% 2017

Use of internet services in Bulgaria varies significantly according to the activities performed online. Bulgarians are intensive users as regards telephone or video calls: 85 % of Bulgarians who used the internet in the last 3 months also used it to make telephone or video calls, the highest value in the EU. The use of social networks is also among the highest in the EU. On the other side, Bulgarian consumers are far from using the full potential of e-commerce. In 2017, the proportion of internet users ordering goods or services over the internet in the previous 12 months was among the lowest in the EU at 27 % (EU average: 68 %). The number of people using banking online is also particularly low, accounting for 9 % of all internet users (which corresponds to 5 % of all individuals).

4 Integration of Digital Technology

4 Integration of Digital Technology	Bulgaria		Cluster	EU
	rank	score	score	score
DESI 2018	26	24.4	29.2	40.1
DESI 2017	26	22.5	26.7	36.7

	Bulgaria				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
4a1 Electronic Information Sharing % enterprises	23% 2017	↓ 25	25% 2015	22	34% 2017
4a2 RFID % enterprises	9.2% 2017	→ 1	9.2% 2014	1	4.2% 2017
4a3 Social Media % enterprises	9% 2017	→ 28	9% 2016	26	21% 2017
4a4 eInvoices % enterprises	12.0% 2017	↑ 21	10.2% 2016	21	NA 2017
4a5 Cloud % enterprises	5.5% 2017	↑ 27	4.7% 2016	28	NA 2017
4b1 SMEs Selling Online % SMEs	7.1% 2017	↑ 28	5.2% 2016	28	17.2% 2017
4b2 E-commerce Turnover % SME turnover	3.5% 2017	↑ 26	1.7% 2016	28	10.3% 2017
4b3 Selling Online Cross-border % SMEs	3.4% 2017	↑ 27	2.8% 2015	27	8.4% 2017

Uptake of digital technology by enterprises is slow in Bulgaria. A growing ecosystem of digital and tech entrepreneurs has emerged in recent years, but investment in the digitisation of the economy is still limited. This underinvestment, combined with a shortage of ICT specialists, may be among the reasons why the digitisation process in Bulgaria is slower than in other Member States. According to the digital intensity index, the number of digitised enterprises in 2017 was among the lowest in the EU, at 12 %. While Bulgarian companies are major users of radio-frequency identification (RFID), their use of social media or cloud computing services remains among the lowest in the EU, respectively at 9 % and 5.5 % of the total number of enterprises. At 7.1 %, the level of SMEs selling online is also well below the EU average of 17.2 %.

Projects to encourage business innovation and digitisation are being run under the 2014-2020 European Regional Development Fund programmes, supporting the development of innovative digital start-ups. The flagship 'Sofia Tech Park' faces a number of challenges regarding scientific infrastructure and long-term financial sustainability. In 2017, the Council of Ministers adopted a concept note for the digital transformation of Bulgarian industry¹³, outlining the need for a modernised Bulgarian economy. The Bulgarian economy would benefit from a concrete strategy on the digital transformation of Bulgarian industry.

¹³ Concept for the digital transformation of Bulgarian industry

5 Digital Public Services

5 Digital Public Services	Bulgaria		Cluster	EU
	rank	score	score	score
DESI 2018	23	49.7	48.0	57.5
DESI 2017	22	45.2	44.2	53.7

	Bulgaria				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
5a1 eGovernment Users¹⁴ % internet users needing to submit forms	58% ↑	15	57%	18	58%
	2017		2016		2017
5a2 Pre-filled Forms Score (0 to 100)	25 ↑	24	19	25	53
	2017		2016		2017
5a3 Online Service Completion Score (0 to 100)	72 ↑	26	71	23	84
	2017		2016		2017
5a4 Digital Public Services for Businesses Score (0 to 100) — including domestic and cross-border	89 ↑	11	74	20	83
	2017		2016		2017
5a5 Open Data % of maximum score	76% →	14	76%	7	73%
	2017		2016		2017
5b1 eHealth Services % individuals	10%	23	NA		18%
	2017				

In terms of eGovernment, Bulgaria is progressing, but at a slower pace than other EU countries. A number of steps have been taken to improve digital public services. A strategic framework is in place, the State e-Government Agency (SEGA), created in December 2016, is now fully operational and the ICT budget framework has been optimised. The number of eGovernment users has increased compared to last year and it is now in line with the EU average.

In the summer of 2017, the Governance Programme for the period 2017-2021 was adopted, setting out the priorities and the measures related to digital public administration. It includes the introduction of a national scheme for electronic identification; further development of basic infrastructure; connection of key registers and provision of interoperability for an automated/semi-automated exchange of data and electronic documents. Many of these activities will be financed through the European Social Fund. While some activities have already started, many projects are still in the early stages of implementation, for example the centralised IT system for registering citizens and the introduction of new identity documents¹⁵.

Digital public services for businesses shows a significant improvement compared to last year, scoring 89 out of a 100. As of 2018, tax declarations for legal persons are to be submitted only in electronic form. For physical people, this will be optional and will be incentivised via a tax rebate.

¹⁴ The definition of this indicator has been changed. The new indicator measures eGovernment users as a percentage of those internet users needing to submit forms to the public administration.

Bulgaria continues to perform well in the area of open data: there are currently over 7 000 datasets from different national and regional administrations and agencies.

The swift implementation of the eIDAS Regulation¹⁵ would further enhance users' trust in digital transactions, especially through the notification of its national eID under eIDAS, which is currently in development.

Concerning eHealth services, Bulgaria performs below the EU average. The Ministry of Health has initiated a project on the development and implementation of a National Health Information System (NHIS). This system includes developing health registries, implementing a pharmacotherapeutic expert system to flag possible drug interactions, building an online platform of the NHIS, and introducing an electronic health record, referral, and prescription¹⁶.

Overall, Bulgaria showed progress in the area of Digital Public Services. Efficiently implementing the ongoing projects and the eIDAS Regulation would be beneficial. Bulgaria could also start preparing for the forthcoming Single Digital Gateway Regulation, including the once-only principle.

¹⁵ Regulation (EU) No 910/2014 on electronic identification and trust services for electronic transactions in the internal market.

¹⁶ The NHIS is endorsed by the National Health Strategy (2014-2020) and the Strategy on the development of eGovernment in the Republic of Bulgaria (2014–2020). In November 2016, the Ministry of Health issued an Ordinance on unified health information standards, to be applied by healthcare establishments, as a prerequisite for the NHIS implementation. <http://www.hsppm.org/countries/bulgaria22042013/countrypage.aspx>.