

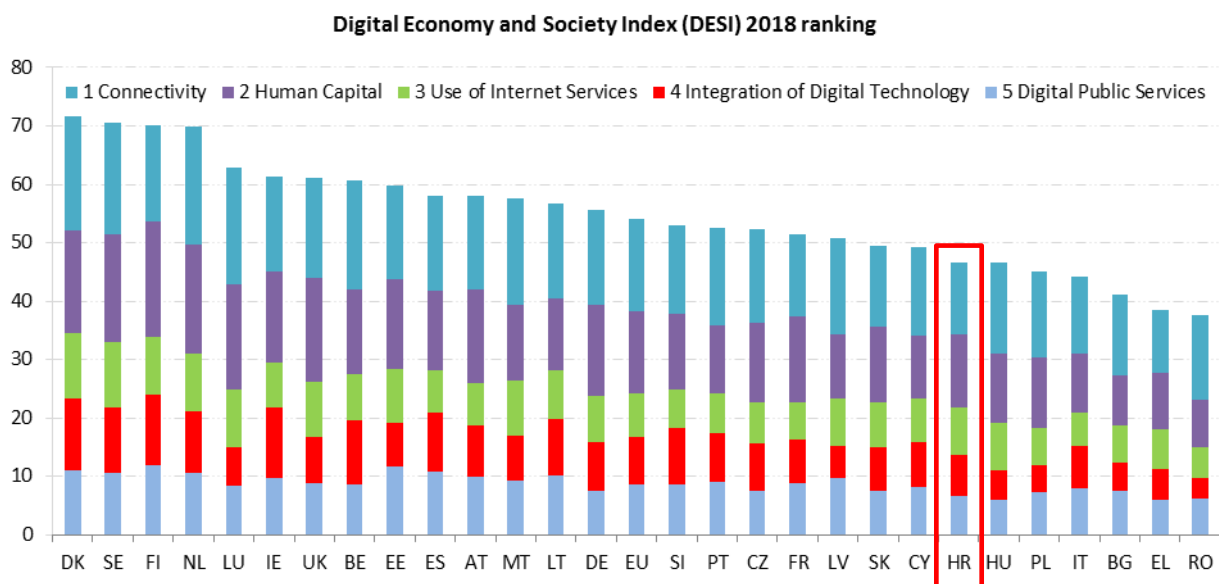
Digital Economy and Society Index (DESI)¹ 2018

Country Report Croatia

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>.



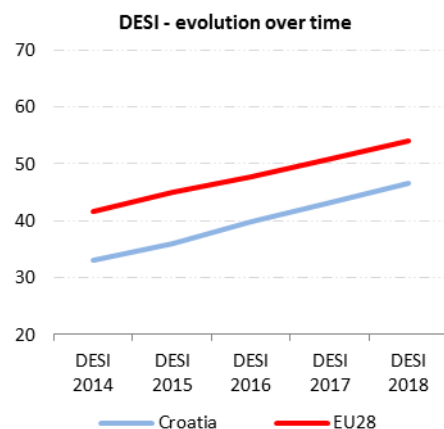
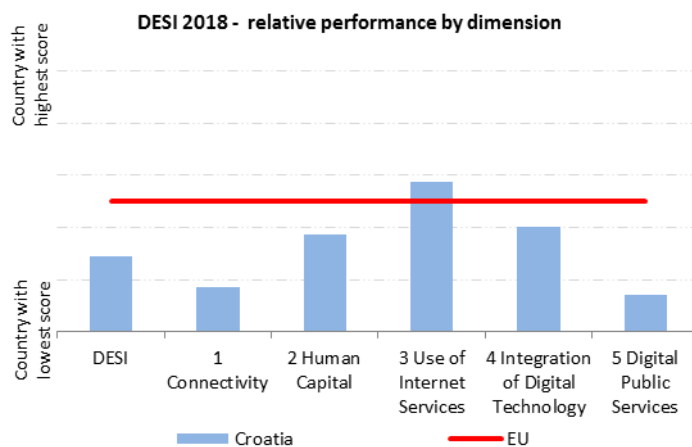
¹ <https://ec.europa.eu/digital-single-market/en/desi>

	Croatia		Cluster	EU
	rank	score	score	score
DESI 2018	22	46.7	43.5	54.0
DESI 2017	23	43.2	40.4	50.8

Croatia ranks 22nd out of the 28 EU Member States. Overall, it made good progress over the last year. Croatian citizens are above average internet users and enterprises are also keen to employ digital technologies. Croatia's greatest challenge in digital remains its low performance in connectivity (rank 27). Rural broadband connectivity and fast broadband coverage are limited, while prices for fixed broadband remain the highest in Europe. The incumbent (together with its subsidiaries) has a very high market share. In terms of eGovernment, Croatia is progressing slowly and remains at rank 25. The number of eGovernment users is above the EU average but there has been no progress on the delivery of eGovernment services. Croatia performs well on Open Data and eHealth Services. In order to reap the full benefits of the digital transformation, Croatia needs to improve its broadband infrastructure.

Croatia belongs to the low-performing cluster of countries².

Following the September 2016 elections, the new Government was setting up a Central Office for the Development of the Digital Society. Its mission comprises supporting the Croatian Government in the development of ICT infrastructure and digital public services, and popularising the development of the digital society among citizens, across the economy and in the public sector. Digital Strategies are currently being updated and are to be released before the end of the year.



² Low-performing countries are: Romania, Greece, Bulgaria, Italy, Poland, Hungary, Croatia, Cyprus and Slovakia.

1 Connectivity

1 Connectivity	Croatia		Cluster	EU
	rank	score	score	score
DESI 2018	27	49.4	55.0	62.6
DESI 2017	27	44.2	50.1	58.5

	Croatia				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
1a1 Fixed Broadband Coverage % households	99% ↑	12	97%	18	97%
	2017		2016		2017
1a2 Fixed Broadband Take-up % households	70% →	19	70%	17	75%
	2017		2016		2017
1b1 4G Coverage % households (average of operators)	73% ↑	26	67%	25	91%
	2017		2016		2017
1b2 Mobile Broadband Take-up Subscriptions per 100 people	81 ↑	20	78	15	90
	2017		2016		2017
1c1 Fast Broadband (NGA) Coverage % households covered by VDSL, FTTP or Docsis 3.0	67% ↑	25	60%	26	80%
	2017		2016		2017
1c2 Fast Broadband Take-up % homes subscribing to >= 30Mbps	14% ↑	25	7%	25	33%
	2017		2016		2017
1d1 Ultrafast Broadband Coverage % households covered by FTTP or Docsis 3.0	34%	26	NA		58%
	2017				2017
1d2 Ultrafast Broadband Take-up % homes subscribing to >= 100Mbps	1.4% ↑	26	0.4%	26	15.4%
	2017		2016		2017
1e1 Broadband Price Index Score (0 to 100)	63 ↑	28	56	28	87
	2017		2016		2017

Croatia did not make significant progress in this area compared to 2017, although it improved its overall score. On fixed broadband coverage of households (99 %), Croatia performs above the EU average (97 %) which is the category where the highest improvement over the last year was achieved. However, fast and ultrafast broadband coverage remain very weak. Broadband services are available throughout the country but the take-up of fast broadband is low (14 %) despite fairly wide availability (67 %). Factors contributing to the low take-up include low internet use and relatively high prices for (fast) broadband (63 on the Broadband Price Index, EU average 87). In the past year, Croatia has maintained its rank or dropped back in most of the connectivity subcategories, with exception of the fixed broadband and fast broadband coverage. The coverage of ultrafast broadband of 100 Mbps and above is also low (34.1 %), and the take-up extremely low (1.4 %).

The incumbent continues to have a strong market presence in Croatia, controlling more than 71 % of the fixed market. The Croatian Competition Protection Agency has granted an extension of the incumbent's control of Optima Telekom by 2021; this decision will not help to improve the competitiveness of the sector.

National investment in broadband is improving but more focused regulation could be beneficial to increase the investments of alternative operators. Moreover, regulation could

focus on alleviating market imbalances to improve Croatia's position, as it has the lowest score in the Broadband Price Index. This may provide at least part of the explanation for low take-up rates across all technologies and speeds. It is noticeable that investments in ultrafast broadband infrastructure are much higher in 2017 than in the last 5 years, with more than 70 announcements of new fibre access networks, most made by the biggest alternative operator and the incumbent.

Croatia could focus more on its low connectivity so as to achieve the Digital Agenda for Europe goals and in particular to reach fast broadband coverage of the entire population by broadband speeds of at least 30 Mbps. It would be beneficial to speed up the roll-out of the approved EU-funded access and backhaul networks. In particular the latter seems to be blocked at government level, with Croatia risking losing EU funds. In this context, alternative operators would benefit the most from backhaul deployment. In general, Croatia could be more vigilant in ensuring competition in the market. This would benefit consumers and stimulate investments in fast internet infrastructure and take-up of related retail products. If no action is taken, Croatia risks falling even further behind in the creation of a digital economy and society.

2 Human Capital

2 Human Capital	Croatia		Cluster	EU
	rank	score	score	score
DESI 2018	18	49.8	42.2	56.5
DESI 2017	19	45.9	40.6	54.6

	Croatia				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
2a1 Internet Users % individuals	NA		71%	22	81%
	2017		2016		2017
2a2 At Least Basic Digital Skills % individuals	NA		55%	13	57%
	2017		2016		2017
2b1 ICT Specialists % individuals	3.3%	↑ 17	2.7%	18	3.7%
	2016		2015		2016
2b2 STEM Graduates³ Per 1000 individuals (aged 20-29)	17.1	↑ 16	15.7	20	19.1
	2016		2014		2015

Croatia is making good progress on human capital. The number of ICT specialists increased from 2.7 % to 3.3 % and the share of graduates in Science, Technology, Engineering and Mathematics (STEM) in the 20-29 years old cohort went up as well, reaching 1.7 %.

A number of reforms have been prepared in the context of the Strategy for Education, Science and Technology and the associated curricular reform. However, progress in 2017 has been limited. The introduction of obligatory ICT classes in 5th and 6th grade in primary schools is now planned for 2018. Also in 2018, the Ministry of Science and Education plans to announce a call for expressions of interest for schools which want to participate in the experimental stage of the curricular reform.

Currently, 10 % of Croatian schools are taking part in the European structural and investment funds-supported e-Schools project designed to prepare strategic documents, plans and policies to systematically integrate ICT into activities of all primary and secondary schools by 2022. Schools participating in the project are being equipped with at least one ICT classroom and receive equipment including laptops, tablets, presentation equipment, and wired and wireless local area networks. In parallel, learning scenarios for ensuring creative ICT use and digital educational content are being developed. There is increasing demand for employees with ICT skills. Interest in STEM studies is slowly improving, and Croatia plans to attract more students to STEM studies by increasing the number of scholarships.

Croatia is currently developing a strategy to address its digital skills challenges and is planning to set up a national coalition of relevant stakeholders, bringing together industry, education and employers to further improve digital skills.

³ 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.

3 Use of Internet Services

3 Use of Internet Services	Croatia		Cluster	EU
	rank	score	score	score
DESI 2018	11	54.1	41.0	50.5
DESI 2017	14	50.2	38.7	47.5

	Croatia				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
3a1 News % individuals who used Internet in the last 3 months	91% →	2	91%	2	72%
	2017		2016		2017
3a2 Music, Videos and Games % individuals who used Internet in the last 3 months	85%	8	85%	8	78%
	2016		2016		2016
3a3 Video on Demand % individuals who used Internet in the last 3 months	17%	13	17%	13	21%
	2016		2016		2016
3b1 Video Calls % individuals who used Internet in the last 3 months	63% ↑	4	45%	14	46%
	2017		2016		2017
3b2 Social Networks % individuals who used Internet in the last 3 months	70% ↑	16	69%	14	65%
	2017		2016		2017
3c1 Banking % individuals who used Internet in the last 3 months	50% ↓	20	53%	20	61%
	2017		2016		2017
3c2 Shopping % individuals who used Internet in the last 12 months	NA		45%	21	68%
	2017		2016		2017

In terms of the propensity of individuals to use Internet services, Croatia continued to make good progress over the last year, and improved from rank 14 to rank 11. This continues to be the dimension where Croatia scores best and well above the EU average. Croatian Internet users read news online (91%, 2nd in Europe), listen to music, watch videos and play games online, watch films and make video calls over the Internet. They use social networks and online banking and use Internet for online shopping.

4 Integration of Digital Technology

4 Integration of Digital Technology	Croatia		Cluster	EU
	rank	score	score	score
DESI 2018	21	35.4	29.2	40.1
DESI 2017	17	34.6	26.7	36.7

	Croatia				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
4a1 Electronic Information Sharing % enterprises	26% ↓	23	29% ↓	20	34% ↓
	2017		2015		2017
4a2 RFID % enterprises	4.5% ↓	16	4.7% ↓	11	4.2% ↓
	2017		2014		2017
4a3 Social Media % enterprises	16% ↑	18	15% ↓	19	21% ↓
	2017		2016		2017
4a4 eInvoices % enterprises	11.2% ↑	22	9.9% ↓	22	NA
	2017		2016		2017
4a5 Cloud % enterprises	21.7% ↑	8	15.7% ↓	9	NA
	2017		2016		2017
4b1 SMEs Selling Online % SMEs	17.1% ↓	13	18.0% ↓	11	17.2% ↓
	2017		2016		2017
4b2 E-commerce Turnover % SME turnover	8.7% ↑	18	8.3% ↓	16	10.3% ↓
	2017		2016		2017
4b3 Selling Online Cross-border % SMEs	8.3% ↓	14	8.9% ↓	13	8.4% ↓
	2017		2015		2017

Over the last year, Croatia made slow progress on the Integration of Digital Technology by businesses, and fell back from rank 17 to rank 21 because other countries were progressing faster. Croatian enterprises are above average users of cloud technologies and they take advantage of the possibilities offered by online commerce: 17.1% of SMEs sell online, similar to the EU average of 17.2%. eInvoices are slowly gaining popularity, while 17% of enterprises have high levels of Digital Intensity (compared to the EU average of 21.5%, see Digital Scoreboard).

Croatia is preparing a comprehensive Strategy for the Digitisation of the Economy. This initiative is being prepared in joint collaboration between all relevant stakeholders, including universities and the academic community, the business sector, industry and the relevant central government bodies.

Three Croatian Digital Innovation Hubs have been selected to participate in a project to support the development of new Hubs in the 13 new EU Member States.

The Croatian Chamber of Commerce (HGK) project 'HGK Digital Croatia Hub — DigiCro' is a consortium consisting of the HGK, technical universities and coworking organisations. It will provide expert support and specialised infrastructure to companies going through the process of digitisation. It will also be the central point for the digitisation of SMEs and start-ups, experimenting with digital innovations including robotics, photonics, high-performance computing, cyber-physical systems, data analysis and data protection.

As digital technologies offer new ways to connect, collaborate and conduct business, they touch the core of all business functions and are challenging existing business models. In spite of the relative absence of national digitisation policies, Croatian companies are keen to employ digital technologies. It would therefore be even more beneficial for the Croatian economy if Croatia's businesses could benefit from a targeted digitisation strategy.

Highlight 2018: High-performance computing

Croatia signed the European declaration on high-performance computing on 20 November 2017. The Bura supercomputer at the University of Rijeka is the most powerful supercomputer in the Adriatic region. Named after the Croatian north wind, it is used in biotechnological and biomedical research and is also available to institutions and companies from abroad. Bura was installed by Bull Atos and is a 'green' computer according to testing performed by Green 500, placing it at 175th position worldwide with 234 teraflops.

As one of the leading players in high-performance electric cars, Croatia-based Rimac signed an agreement with the University of Rijeka at the beginning of December 2017 on using the super computer for finishing the development of the latest Concept Two electric car, which has 1 384 HP and a top speed of around 400 km/h.

5 Digital Public Services

5 Digital Public Services	Croatia		Cluster	EU
	rank	score	score	score
DESI 2018	25	44.4	48.0	57.5
DESI 2017	25	41.4	44.2	53.7

	Croatia				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
5a1 eGovernment Users⁴ % internet users needing to submit forms	66% →	13	66%	12	58%
	2017		2016		2017
5a2 Pre-filled Forms Score (0 to 100)	20 →	25	20	24	53
	2017		2016		2017
5a3 Online Service Completion Score (0 to 100)	62 ↑	27	61	27	84
	2017		2016		2017
5a4 Digital Public Services for Businesses Score (0 to 100) - including domestic and cross-border	61 →	26	61	25	83
	2017		2016		2017
5a5 Open Data % of maximum score	76% ↑	13	60%	13	73%
	2017		2016		2017
5b1 eHealth Services % individuals	22%	10	NA		18%
	2017				

In terms of eGovernment, Croatia is progressing and remains at rank 25 in the DESI 2018. At 66 %, the number of eGovernment users is above the EU average. However, there has been no progress with the delivery of services and services for businesses. On Open Data, Croatia continued to make considerable progress over the last year and still scores slightly above the European average. As to eHealth Services, Croatia is performing well and ranks 10th among EU Member States when it comes to people who used health and care services provided online without having to go to the hospital or doctor's surgery (for example, by getting a prescription or a consultation online).

The eCitizen platform launched in 2014 offered 43 different eServices in 2017 and continues to develop and integrate new features. More than 1.5 million citizens have an electronic IDcard with an identification and signature certificate. Since October 2017 Croatia has been implementing the 'Once only principle'. The eCroatia 2020 strategy and aAction Plan, and the eGovernment and government digitisation plan (May 2017), are aimed at supporting positive developments in this policy area, including interoperable government systems and services to reduce bureaucracy. An important feature is the establishment of a *Shared Service Centre in the Cloud* which would coordinate and manage all ICT applications by various government institutions (2 300 targeted public bodies to be included in the project). Croatia plans to develop further e-applications for citizens. However, the eBusiness tool for companies is not yet being implemented. Since 28 February 2016, the reception and processing of electronic invoices (eInvoices) for all central contracting authorities and entities

⁴ 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.

is mandatory. New legislation on eInvoicing in public procurement has been prepared and is in legislative procedure.

Croatia is performing well when it comes to eHealth services. With more than 17 000 users and a large number of IT systems, the Central Health Care Information System in Croatia (CEZIH) provides a good basis for the informatisation of the entire healthcare system in Croatia. All general practice/family medicine offices, paediatric offices, gynaecological offices, dentist offices, pharmacies, primary healthcare laboratories, school medicine offices (153), out-of-hospital specialist-consiliary health care (approx. 800) and information systems of the Croatian Institute for Health Insurance are connected to CEZIH. All of the listed participants in the system send data to the central database in real time, and receive advanced reports on the operation of the healthcare system from the database. Croatia introduced ePrescriptions in January 2011. E-referral and telemedicine services, i.e. medical services provided from a distance through information and communication technologies, are currently provided at several levels of the healthcare system.