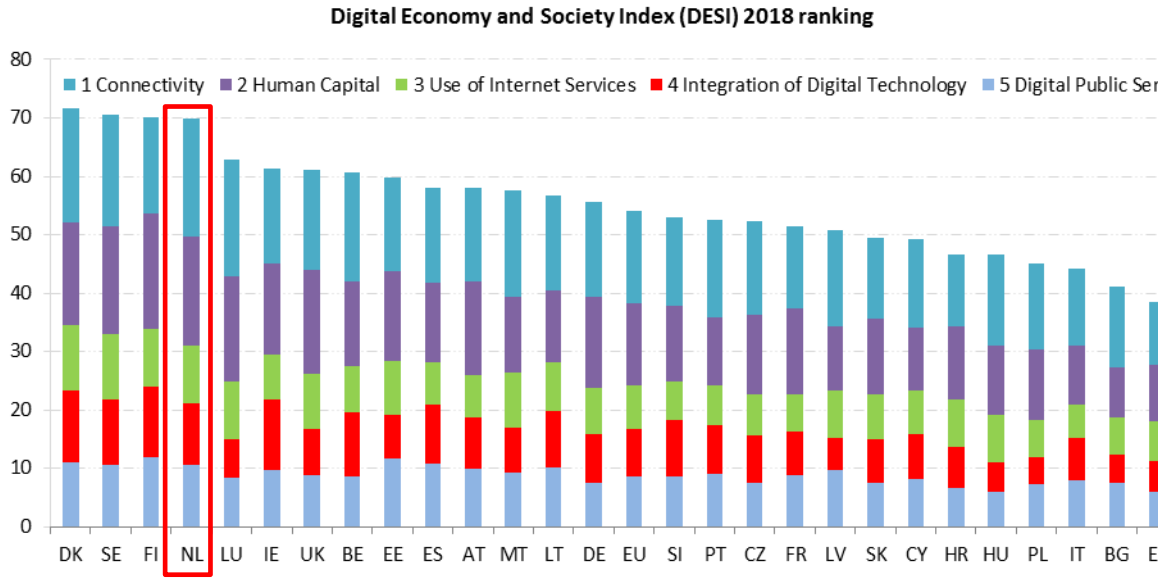
Digital Economy and Society Index (DESI)[1] 2018 Country Report The Netherlands

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, broadband speed 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



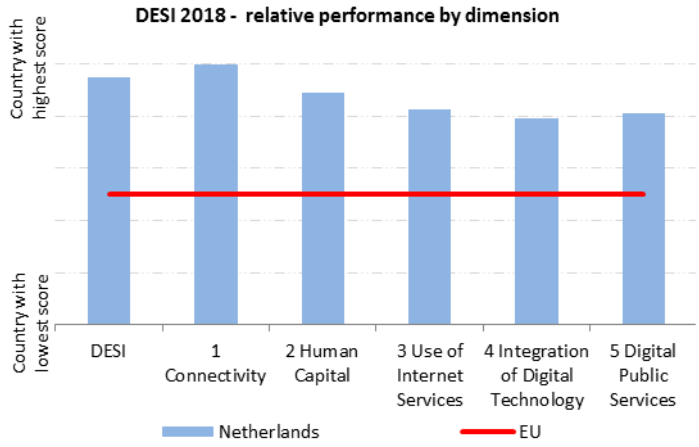
[1] https://ec.europa.eu/digital-single-market/en/desi

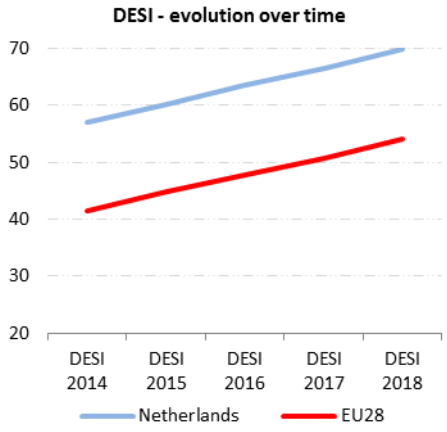
	Netherlands		Cluster	EU
	rank	score	score	score
DESI 2018	**4**	**69.9**	**64.0**	**54.0**
DESI 2017	4	66.5	61.2	50.8

The Netherlands ranks 4th out of the 28 Member States, only 0.02 score from 2nd position. The country progressed at a faster pace than the EU average, outperforming the other Member States in all five DESI dimensions while improving its ranking in two of them compared to the previous year. The Netherlands continues to be the European leader in connectivity with a high-quality, ubiquitous digital infrastructure. These advanced digital networks boost the growth of the Dutch digital economy and society, support a highly advanced business, education and science environment and attract international investments. Almost all Dutch individuals (94 %) make extensive use of internet services, especially for banking (93 %) and shopping (82 %). Integration of Digital Technology (rank 6) has increased over the last year in most DESI categories. In Digital Public Services (rank 6), the Netherlands improved its scores in terms of all relevant parameters and remains way above the EU average.

The Netherlands belongs to the high-performing cluster of countries[2].

The Dutch digitisation strategy is set by the Dutch Digital Agenda[3], which is expected to be updated this year. Sector-specific guidelines are set by the Knowledge and Innovation Agenda ICT[4] and other research innovation agendas such as Smart Industry. The new government, in its 2017-2021 coalition agreement, cited cybersecurity, digitisation of public services and digital skills among its main priorities.





[2] High-performing countries are Denmark, Sweden, Finland, the Netherlands, Luxembourg, Ireland, the UK, Belgium and Estonia.

[3] https://hollandfintech.com/digital-agenda-renew-trust-accelerate/

[4] https://www.4tu.nl/nirict/en/Research/knowledge-and-innovation-agenda-ict-2016-2020.pdf

1 Connectivity

1 Connectivity	Netherlands		Cluster	EU
	rank	score	score	Score
DESI 2018	1	81.1	71.9	62.6
DESI 2017	1	77.8	67.9	58.5

	Netherlands				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
1a1 Fixed Broadband Coverage →	**>99.5%**	**2**	**100%**	**2**	**97%**
% households	2017		2016		2017
1a2 Fixed Broadband Take-up ↑	**98%**	**1**	**95%**	**2**	**75%**
% households	2017		2016		2017
1b1 4G Coverage ↑	**100%**	**3**	**91%**	**16**	**91%**
% households (average of operators)	2017		2016		2017
1b2 Mobile Broadband Take-up ↑	**88**	**14**	**85**	**12**	**90**
Subscriptions per 100 people	2017		2016		2017
1c1 Fast Broadband (NGA) Coverage →	**98%**	**3**	**98%**	**3**	**80%**
% households covered by VDSL, FTTP or Docsis 3.0	2017		2016		2017
1c2 Fast broadband take-up ↑	**73%**	**1**	**65%**	**1**	**33%**
% homes subscribing to >= 30 Mbps	2017		2016		2017
1d1 Ultrafast Broadband Coverage	**97%**	**2**	**NA**		**58%**
% households covered by FTTP or Docsis 3.0	2017				2017
1d2 Ultrafast Broadband take-up ↑	**32.2%**	**6**	**30.6%**	**3**	**15.4%**
% homes subscribing to >= 100 Mbps	2017		2016		2017
1e1 Broadband price index ↑	**90**	**6**	**88**	**10**	**87**
Score (0 to 100)	2017		2016		2017

The Netherlands is one of the best performers in the area of connectivity. Fixed broadband coverage and take-up are high (>99.5 % and 98 % respectively) and 4G mobile broadband is available to the entire population. Ultrafast broadband coverage is nearly complete (97 %) while the take-up is at around one third of households. Broadband services are available throughout the country (through fixed, mobile and satellite networks). On the other hand, the mobile broadband take-up is relatively low (88 subscriptions per 100 people).

The Dutch telecommunications services market is still characterised by the major players KPN and VodafoneZiggo holding very strong positions. According to the provisional conclusion of the regulatory authority AGM (in public consultation), they hold a joint dominance on the wholesale and retail markets.

The Dutch authorities help regional and local authorities create the right conditions for market players to roll out fast internet without public funding by sharing knowledge and best practices. The Netherlands is focusing its future efforts on 5G applications and the Internet of Things as key drivers for future communications technologies. In this context, a 5G frequency auction is planned for 2019.

In a near duopoly situation at fixed network level, the mobile market seems to be under intense pressure due to the fact that bundled packages require access to fixed infrastructure, which pure-play mobile operators lack. This resulted in T-Mobile moving to acquire Tele2 (still subject to merger control).

2 Human Capital

2 Human Capital	Netherlands		Cluster	EU
	rank	score	score	score
DESI 2018	**2**	**74.3**	**70.7**	**56.5**
DESI 2017	3	72.3	69.4	54.6

	Netherlands					EU
	DESI 2018			DESI 2017		DESI 2018
	value		rank	value	rank	value
2a1 Internet Users	**94%**	↑	**4**	**92%**	**4**	**81%**
% individuals	2017			2016		2017
2a2 At Least Basic Digital Skills	**79%**	↑	**2**	**77%**	**3**	**57%**
% individuals	2017			2016		2017
2b1 ICT Specialists	**5.0%**	→	**5**	**5.0%**	**3**	**3.7%**
% of total employment	2016			2015		2016
2b2 STEM Graduates[5]	**NA**			**NA**		**19.1**
Per 1 000 individuals (aged 20-29)	2015 or 2016			2014		2015

The Netherlands ranks among the frontrunners in terms of the number of individuals using the internet and those with advanced digital skills, and has further improved its score. While the supply of ICT specialists is higher than the EU average (3.7 %), it remains stable at around 5 %.

There is significant demand for highly skilled ICT professionals in big data, cybersecurity and artificial intelligence. In January 2018, there were more than 33 000 online ICT vacancies, with demand growing by 50 % over the last 12 months[6]. The shortage of ICT professionals is a major issue for the development of the Dutch digital economy and society and may hamper the integration of digital technology by businesses and public services. According to the Dutch employee insurance agency (UWV)[7], the shortage is expected to continue and requires continuous policy focus and monitoring.

The Dutch Digital Agenda addresses talent development and the supply of professionals with the right skills by implementing a number of policy measures that aim to integrate ICT in the education system, improve the connection between skills supply and demand and stimulate lifelong learning. The Human Capital Agenda for ICT targets the growing demand for ICT professionals by bringing together companies and educational institutions to get more young people interested in the jobs of the future, scholarships, internships and further training of ICT professionals. ICT skills play an important role and are a common objective in the Technology Pact 2020[8], where public-private cooperation is a key mechanism for improving the link between education and the workplace. Coordination between consortia and the centres for professional education will be strengthened and further public-private partnership will be developed into 'learning communities' in which learning, work and innovation are closely linked[9].

[5] 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.

[6] http://www.pocbigdata.eu/monitorICTonlinevacancies

[7] Van der Aalst and Van den Beukel, 2017.

[8] https://www.techniekpact.nl/cdi/files/e3bd421f98a0f362b6a13091de60d08978df34e9.pdf

[9] http://www.socialinnovationlab.nl/

3 Use of Internet Services

3 Use of Internet	Netherlands		Cluster	EU
	rank	score	score	score
DESI 2018	**3**	**66.5**	**63.4**	**50.5**
DESI 2017	4	62.2	60.5	47.5

	Netherlands				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
3a1 News % individuals who used Internet in the last 3 months	**80%** ↑ 2017	**15**	**75%** 2016	**17**	**72%** 2017
3a2 Music, Videos and Games % individuals who used Internet in the last 3 months	**88%** 2016	**6**	**88%** 2016	**6**	**78%** 2016
3a3 Video on Demand % individuals who used Internet in the last 3 months	**39%** 2016	**3**	**39%** 2016	**3**	**21%** 2016
3b1 Video Calls % individuals who used Internet in the last 3 months	**46%** ↑ 2017	**19**	**39%** 2016	**20**	**46%** 2017
3b2 Social Networks % individuals who used Internet in the last 3 months	**70%** ↑ 2017	**18**	**66%** 2016	**19**	**65%** 2017
3c1 Banking % individuals who used Internet in the last 3 months	**93%** ↑ 2017	**2**	**91%** 2016	**2**	**61%** 2017
3c2 Shopping % internet users (last year)	**82%** ↑ 2017	**4**	**79%** 2016	**6**	**68%** 2017

In terms of individuals using Internet services, the Netherlands made progress over the last year and now ranks 3rd. It progressed in almost all fields: more Dutch Internet users read news online (80 %); they also listen to music, watch videos and play games online more than Europeans on average (88 % compared to 78 % for the EU-28). Dutch Internet users are also increasingly using video calls (from 39 % to 46 %) and social networks (from 66 % to 70 %), which improved the ranking in both fields. Internet users in the Netherlands continue to outperform those in other EU countries in the use of online banking (93 % compared with 61 % in the EU-28), and rank 2 among Member States. They also use the Internet for online shopping more than most other Europeans (82 % compared with 68 % in the EU-28), with the Netherlands improving its ranking from 6 to 4 over the last year.

4 Integration of Digital Technology

4 Integration of Digital Technology	Netherlands rank	Netherlands score	Cluster score	EU score
DESI 2018	**6**	**52.3**	**47.0**	**40.1**
DESI 2017	6	48.0	44.0	36.7

	Netherlands DESI 2018 value		Netherlands DESI 2018 rank	Netherlands DESI 2017 value	Netherlands DESI 2017 rank	EU DESI 2018 value
4a1 Electronic Information Sharing % enterprises	**48%** 2017	↑	**2**	**45%** 2015	**3**	**34%** 2017
4a2 RFID % enterprises	**5.0%** 2017	↑	**12**	**3.1%** 2014	**19**	**4.2%** 2017
4a3 Social Media % enterprises	**39%** 2017	↑	**2**	**38%** 2016	**2**	**21%** 2017
4a4 eInvoices % enterprises	**19.0%** 2017	↑	**11**	**18.8%** 2016	**11**	**NA** 2017
4a5 Cloud % enterprises	**NA** 2017			**29.4%** 2016	**4**	**NA** 2017
4b1 SMEs Selling Online % SMEs	**15.3%** 2017	↓	**18**	**16.1%** 2016	**14**	**17.2%** 2017
4b2 E-commerce Turnover % SME turnover	**9.5%** 2017	↑	**15**	**9.2%** 2016	**14**	**10.3%** 2017
4b3 Selling Online Cross-border % SMEs	**11.1%** 2017	↑	**8**	**10.3%** 2015	**7**	**8.4%** 2017

The Netherlands ranks 6th in the Integration of Digital Technology by businesses and made progress over the last year. Dutch enterprises have stepped up their digitisation efforts. For example, they increasingly use radio-frequency identification (RFID) technology, share information digitally, make use of electronic invoices and exploit the power of social media. Although SMEs selling online have improved their turnover, the percentage exploiting the opportunities of e-commerce is still below the EU average and has slightly decreased over the last year. The Netherlands ranks 1st among EU countries in terms of enterprises analysing big data from any source (19 %).

The Knowledge and Innovation Agenda 2018-2021[10] opens up new topics (such as creative industries) and more cross-sectoral ones, while developing societal challenges and key technologies. The ICT agenda is instrumental in developing a more cross-sectoral approach and in fostering radical innovation. For 2018-2021, it recognises the strategic cross-sectoral impact of big data, cybersecurity, artificial intelligence, blockchain and 5G.

Over the last 2 years the Smart Industry programme[11], the most important cross-cutting scheme for digitisation of the manufacturing industry, has created 32 field labs in which companies and knowledge institutes develop and test ICT applications. EUR 165 million is being invested in these 32 field labs, with 40 % coming from the business community and 60 % from knowledge

[10] https://www.clicknl.nl/en/news/new-knowledge-and-innovation-agenda-2018-2021/

[11] http://smartindustry.nl/wp-content/uploads/2017/08/The-Dutch-Smart-Industry-action-program-with-fieldlabs.pdf

institutions and the government. The Smart Industry Implementation Agenda 2018 – 2021[12] aims to further increase productivity, create more jobs (and new ones) and therefore help solve societal challenges such as reducing raw materials and energy consumption. The new Agenda will stimulate regional cooperation with the help of field labs, invest in knowledge and skills and help companies and knowledge institutions to share their data safely and effectively.

Highlight 2018: MAKE IT WORK!

'Make IT Work' helps those with university degrees but no specific IT background to retrain for an IT position at higher professional education level and to start a job right away.

It is an initiative of the Amsterdam University of Applied Sciences and the affiliated companies of Netherlands ICT.

Students are selected following a 'career fair event where employers and prospective students meet. If the employer and candidate reach an agreement, the candidate can retrain as a software engineer, cyber security expert or business analytics specialist. In addition to programming, attention is also paid to cooperation and communication skills. The courses are run by the Amsterdam University of Applied Sciences.

Training is divided into two parts: the first part takes 5 months, where students follow a full-time course. The second part lasts 6 months, where they work and go to university one day a week.

The employer covers the retraining costs and offers an employment contract of 6 months comprising a 32-hour week with a market-based salary.

Make IT Work is one of the measures to tackle the shortage of ICT professionals by responding to the urgent demands of employers and also offering job opportunities to highly educated people who are unemployed. For more info, see the Make IT Work website[13].

[12] https://www.smartindustry.nl/wp-content/uploads/2018/03/SI-Implementation-Agenda-2018-English.compressed.pdf

[13] https://www.it-omscholing.nl/nl/

5 Digital Public Services

5 Digital Public Services	Netherlands		Cluster	EU
	rank	score	score	score
DESI 2018	**6**	**70.5**	**63.0**	**57.5**
DESI 2017	6	67.2	60.2	53.7

	Netherlands				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
5a1 eGovernment Users % internet users needing to submit forms	**84%** ↑ 2017	**5**	**83%** 2016	**6**	**58%** 2017
5a2 Pre-filled Forms Score (0 to 100)	**77** ↑ 2017	**6**	**74** 2016	**5**	**53** 2017
5a3 Online Service Completion Score (0 to 100)	**90** ↑ 2017	**9**	**89** 2016	**11**	**84** 2017
5a4 Digital Public Services for Businesses Score (0 to 100) - including domestic and cross-border	**81** ↑ 2017	**18**	**79** 2016	**18**	**83** 2017
5a4 Open Data % of maximum score	**92%** ↑ 2017	**3**	**79%** 2016	**4**	**73%** 2017
5b1 eHealth Services % individuals	**23%** 2017	**9**	**NA**		**18%**

In Digital Public Services, the Netherlands ranks 6th among EU countries. Its continued strong performance in the area of open government data is particularly noteworthy — it achieved a score of 92 % in 2017 (up from 79 % in 2016) in the European Open Data Index, which measures open data policies, use, portal readiness and impact. This trend is expected to continue, with the Dutch government having formulated a strong open government data policy in its 2017 coalition agreement. It includes the aim of providing government information on traffic and transport for vehicles, apps and journey and route planners as well as a commitment to improving electronic public service provision across the board[14]. The Netherlands improved its scores for all relevant parameters and remains way above the EU average.

At the same time, it performs below the EU average in terms of digital public services implemented and available online for both domestic and foreign businesses. Nevertheless, it continues to modernise its public administration, and the 2017 progress report on digital public service availability showed that 90 % of the 550 most used government-wide services were already available digitally[15].

On eHealth services, a newly introduced parameter that measures the percentage of people who use health and care services provided online, the Netherlands ranks 9th with a score of 23 %, which is above the EU average (18 %). Despite a limited (albeit slight increase) uptake of eHealth services, the Netherlands does have a substantial eHealth offering. Against this background, it is encouraging that the Dutch government is committed to promoting the use of eHealth, for which it has set aside a EUR 40 million budget that covers its term in office. This should help strengthen the progress made, which is crucial also in light of the enormous potential: in 2017, 75 % of internet users in the Netherlands searched for health information online — way above the EU average.

[14] 'Confidence in the Future', 2017-2021 coalition agreement of 10 October 2017.

[15] Meting Aanbod Digitale Dienstverlening 2017, of 1 September 2017