

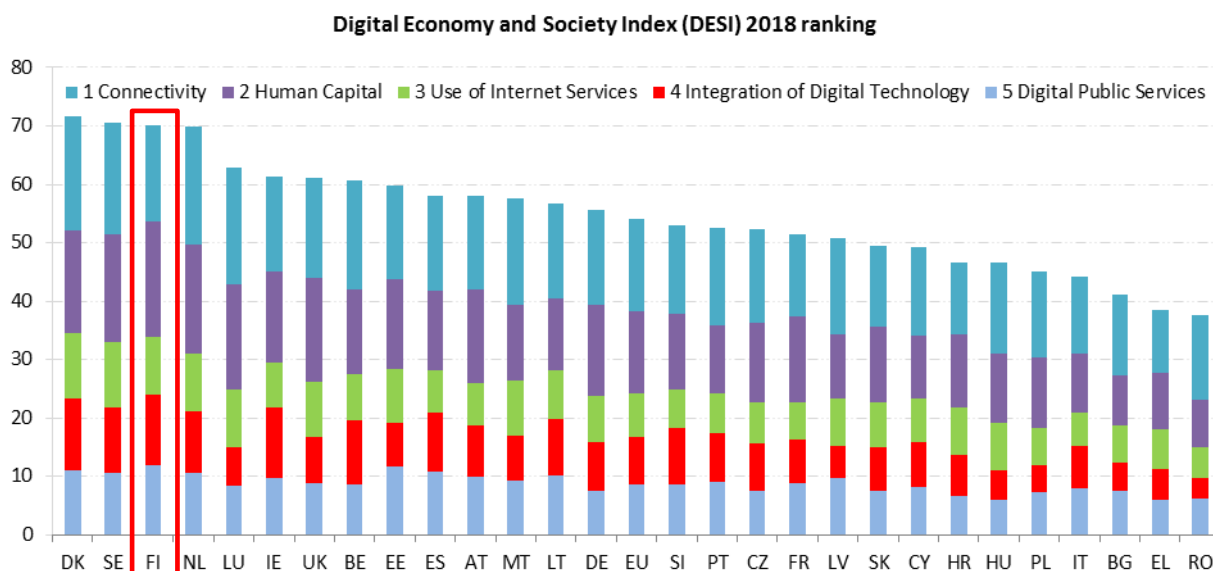
Digital Economy and Society Index (DESI)¹ 2018

Country Report Finland

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>

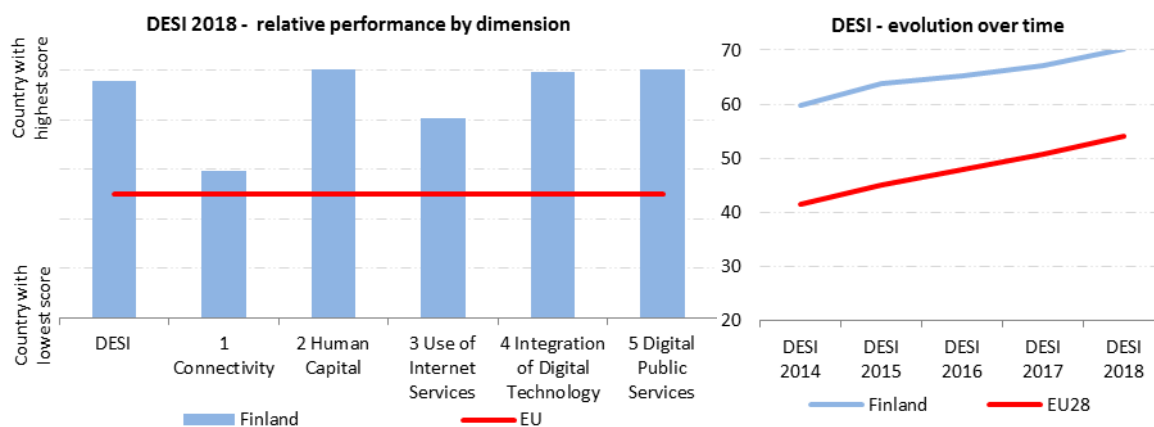
	Finland		Cluster	EU
	rank	score	score	score
DESI 2018	3	70.1	64.0	54.0
DESI 2017	2	67.2	61.2	50.8

Finland ranks 3rd out of the 28 Member States, with a score that is virtually identical to both the 2nd and 4th place. Its overall score regularly progresses more or less in line with the EU average, which is maintaining its outstanding position.

In addition to its leadership position in digital skills, which Finland has already held for several years, it also became the top scorer in digital public services. Moreover, it improved its score on the integration of digital technologies, where it is closing in on the frontrunner. While it remained steady in 5th place for the use of Internet services, it went down two places in the connectivity dimension, which is partly due to the introduction of a new indicator on ultra-fast broadband, where Finland does not score very well.

Overall, Finland remains a world leader in digitisation and one of the best EU countries in this domain.

Finland belongs to the High-performing cluster of countries².



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

1 Connectivity

1 Connectivity	Finland		Cluster	EU
	rank	score	score	score
DESI 2018	9	66.1	71.9	62.6
DESI 2017	7	65.0	67.9	58.5

	Finland				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
1a1 Fixed Broadband Coverage % households	97% →	18	97%	17	97%
	2017		2016		2017
1a2 Fixed Broadband Take-up % households	57% ↓	27	61%	25	75%
	2017		2016		2017
1b1 4G Coverage % households (average of operators)	98% ↑	7	97%	4	91%
	2017		2016		2017
1b2 Mobile Broadband Take-up Subscriptions per 100 people	146 ↓	1	147	1	90
	2017		2016		2017
1c1 Fast Broadband (NGA) Coverage % households covered by VDSL, FTTP or Docsis 3.0	75% →	22	75%	21	80%
	2017		2016		2017
1c2 Fast Broadband Take-up % homes subscribing to >= 30Mbps	23% ↑	22	22%	21	33%
	2017		2016		2017
1d1 Ultrafast Broadband Coverage % households covered by FTTP or Docsis 3.0	59%	21	NA		58%
	2017				2017
1d2 Ultrafast Broadband Take-up % homes subscribing to >= 100Mbps	16.9% ↑	13	16.1%	8	15.4%
	2017		2016		2017
1e1 Broadband Price Index Score (0 to 100)	94 →	1	94	2	87
	2017		2016		2017

With an overall Connectivity score of 66.1 Finland ranks 9th among the Member States. Fixed broadband is available to 97 % of households, despite the specific geographical characteristics of the country. Fixed broadband take-up at 57 % is significantly behind the EU average of 75 %. Only 23 % of households with fixed broadband chose to subscribe to fast broadband (at 30 Mbps or above), which is much below the EU average of 33 %. One of the reasons for the relatively low take-up of fixed broadband connectivity can be seen in Finland's excellent performance in mobile broadband. Indeed, Finland leads the ranks in mobile broadband take-up and is not far away from twice the EU average: its mobile broadband take up was 146 in June 2017 (subscriptions per 100 subscribers) against 90 for the EU over the same period.

On 15 July 2017, national legislation was revised to extend Finland's national broadband plan, the "fast broadband project" until the end of 2019. The project aims at providing an optical fibre or cable network enabling connections of 100 Mbps within two kilometres of 99% of all permanent residences and offices in Finland. State aid is available under the Fast Broadband project to finance high-speed broadband networks.

In practice, network building companies have had difficulties in finding financing for their part of the costs. Therefore they have not been able to run the project on time as planned in the Digital Economy and Society Index 2018, Country Report Finland

initial phase of the "fast broadband project". On 15 July 2017, amended State Aid rules applicable to broadband funding came into force. The amended rules aim at incentivising market players to apply for State Aid and ultimately generate more broadband offers on the market. For instance, the aid intensity could be raised to 90% for ongoing projects.

While Finland has good fixed broadband and 4G coverage overall, coverage in rural areas could be further improved. Market players have not invested enough in the sparsely populated rural areas of the country. In this context, it remains to be seen whether the amendments to the State aid rules of 15 July 2017 will generate the expected results in practice both as far as ongoing and future broadband roll-out projects are concerned.

In the meantime, FICORA has granted Telia Company a licence for testing 5G base stations in Helsinki, Espoo and Vantaa.

2 Human Capital

2 Human Capital	Finland		Cluster	EU
	rank	score	score	score
DESI 2018	1	79.2	70.7	56.5
DESI 2017	1	76.7	69.4	54.6

	Finland				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
2a1 Internet Users % individuals	92% 2017	↑ 6	91% 2016	5	81% 2017
2a2 At Least Basic Digital Skills % individuals	76% 2017	↑ 4	73% 2016	4	57% 2017
2b1 ICT Specialists % individuals	6.6% 2016	↑ 1	6.5% 2015	1	3.7% 2016
2b2 STEM Graduates³ Per 1000 individuals (aged 20-29)	24.3 2016	↑ 2	22.3 2014	4	19.1 2015

Digital skills remain the strongest competitive advantage of the Finnish economy. The share of ICT specialists in its work force increased further, with an additional 4 500 jobs. Overall, Finland managed to increase its score in this dimension faster than the EU average, reversing the catch-up process that had happened during the two previous years.

On the reduction of the share of citizens without at least basic digital skills, progress is constant and the current score leaves space for further improvement. Digital skills and education remain a priority for the authorities, with the continuing implementation of strategic policies. Under the new Finnish national qualifications framework that entered into force in 2017, digital learning environments and new approaches to pedagogy (e.g. modern simulators) will have a bigger role⁴.

Under the Digabi project, the first tests for Matriculation Examination were arranged electronically in autumn 2016, while, all tests will be arranged electronically in spring 2019.

Under the national tutor teacher programme, a tutor teacher will be provided for each basic school in Finland. The tutor teacher's task is to support and train their colleagues locally, for example how to use ICT pedagogically. The organisers of basic education have been granted state subsidies for tutors' training and tutors' work. In 2017 the total grants were about EUR 10 million⁵.

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.

⁴ https://ec.europa.eu/education/sites/education/files/monitor2017-fi_en.pdf

⁵ http://www.eun.org/documents/411753/839549/Country+Report_Finland_2017.pdf/f106f29c-7092-44e3-9ecf-5ae24b521cab

Highlight 2018: support guarantee e-inclusion of people under 30⁶

Tampere University of Applied Sciences is running a three-year project to create new innovative guidance methods and pedagogical solutions to support under 30 year-old students' education and workshops following basic education. These students are often in need of special support in their studies and in life.

This project focuses on developing digital learning environments and on the better inclusion of students needing special support in e-society in a way that every individual would have better possibilities to study, work and be an active citizen in a more and more digitalised society. The inclusion in e-society project aims to develop participation in e-society, inclusion and equality. It aims to strengthen the readiness of teachers and guidance personnel to meet with and to guide students in need of special support to operate in digital learning and operational environments.

As a consequence the project increases the competence of young students, matching better today's labour market demands, ensures smooth transfers from basic education to vocational education and trainings, and prevents drop-outs in education.

⁶ <http://www.tamk.fi/web/tamken/projects?RepoProject=E3110-16013>

3 Use of Internet Services

3 Use of Internet Services	Finland		Cluster	EU
	rank	score	score	score
DESI 2018	5	65.4	63.4	50.5
DESI 2017	5	61.8	60.5	47.5

	Finland				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
3a1 News % individuals who used Internet in the last 3 months	90% ↑ 2017	4	85% 2016	8	72% 2017
3a2 Music, Videos and Games % individuals who used Internet in the last 3 months	91% 2016	2	91% 2016	2	78% 2016
3a3 Video on Demand % individuals who used Internet in the last 3 months	37% 2016	4	37% 2016	4	21% 2016
3b1 Video Calls % individuals who used Internet in the last 3 months	37% ↑ 2017	26	34% 2016	24	46% 2017
3b2 Social Networks % individuals who used Internet in the last 3 months	70% ↑ 2017	15	66% 2016	21	65% 2017
3c1 Banking % individuals who used Internet in the last 3 months	93% ↑ 2017	1	92% 2016	1	61% 2017
3c2 Shopping % individuals who used Internet in the last 12 months	75% ↑ 2017	8	72% 2016	8	68% 2017

The use of Internet services is significantly more widespread in Finland than in the EU average, but not outstandingly so. While online consumption of news, music, video and games as well as online banking have all been virtually universal for a couple of years, online shopping and video calls saw growth in line with overall EU growth. In the use of social networks, where Finland was lagging behind, it has improved its position, now standing above the EU average. Thanks to this improvement, its overall score for this category increased faster than the EU average and faster than the score of the other advanced countries.

4 Integration of Digital Technology

4 Integration of Digital Technology	Finland		Cluster	EU
	rank	score	score	score
DESI 2018	2	60.9	47.0	40.1
DESI 2017	3	55.7	44.0	36.7

	Finland				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
4a1 Electronic Information Sharing % enterprises	39% ↑ 2017	9	37% 2015	12	34% 2017
4a2 RFID % enterprises	6.8% ↑ 2017	3	5.8% 2014	6	4.2% 2017
4a3 Social Media % enterprises	29% ↑ 2017	6	26% 2016	7	21% 2017
4a4 eInvoices % enterprises	NA 2017		71.8% 2016	1	NA 2017
4a5 Cloud % enterprises	48.4% ↑ 2017	1	40.4% 2016	1	NA 2017
4b1 SMEs Selling Online % SMEs	19.6% ↑ 2017	8	17.3% 2016	13	17.2% 2017
4b2 E-commerce Turnover % SME turnover	NA 2017		NA 2016		10.3% 2017
4b3 Selling Online Cross-border % SMEs	5.9% ↑ 2017	23	5.8% 2015	21	8.4% 2017

Finnish enterprises continue to be among the most advanced business in the EU on the integration of digital technologies, and indeed moved up one place, within reach of the frontrunner. In particular the use of cloud computing is very widespread, with every second Finnish company is now making use of it; here Finland scores three times the average of those countries for which data is available.

The policy initiatives launched in 2016⁷ to further increase the use of digital technologies by businesses continued their course in 2017 and are mostly coming to an end in 2018. In December 2017 Finland launched a national artificial intelligence strategy⁸ aiming at turning Finland into a leading country in the application of artificial intelligence. It is based on the assumption that Finland has excellent opportunities to be among the winners in artificial intelligence transformation, since Finland was ranked second among 11 developed countries in a recent report⁹. This was partly due to Finland's business structure and investment

⁷<http://valtioneuvosto.fi/documents/10616/1986338/Action+plan+for+the+implementation+Strategic+Government+Programme+EN.pdf/12f723ba-6f6b-4e6c-a636-4ad4175d7c4e>

⁸

https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/160391/TEMrap_47_2017_verkkojulkaisu.pdf?sequence=1&isAllowed=y

⁹ Accenture and Frontier Economics, "Why Artificial Intelligence is the Future of Growth", 2017.

product-driven industry, partly due to the public sector's degree of digitalisation, and partly due to Finland's high level of education.

The strategy argues that, to take full advantage of the possibilities created by artificial intelligence, actions need to be taken on several fronts: investment in the development and application of technology, an improvement in its ability to adapt, strong scientific support, putting possibilities created by artificial intelligence into practice in both the private and public sectors, and legislation supporting the transformation.

Currently, and despite the overall strong position and the policy support for digitisation, there remain significant disparities among businesses. According to the Finnish Innovation Survey, the importance of digitalisation for enterprises' business activity is much more strongly acknowledged in services than in manufacturing firms: 41% of services firms consider one form or another of digitalisation key to the firm operations, compared to 25.4% of manufacturing firms¹⁰.

¹⁰ OECD Reviews of Innovation Policy, Finland, 2017.

5 Digital Public Services

5 Digital Public Services	Finland		Cluster	EU
	rank	score	score	score
DESI 2018	1	78.6	63.0	57.5
DESI 2017	2	75.8	60.2	53.7

	Finland				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
5a1 eGovernment Users¹¹ % internet users needing to submit forms	91% → 2017	2	91% 2016	2	58% 2017
5a2 Pre-filled Forms Score (0 to 100)	86 ↑ 2017	3	82 2016	3	53 2017
5a3 Online Service Completion Score (0 to 100)	93 → 2017	8	93 2016	6	84 2017
5a4 Digital Public Services for Businesses Score (0 to 100) - including domestic and cross-border	80 → 2017	21	80 2016	16	83 2017
5a5 Open Data % of maximum score	90% ↑ 2017	5	76% 2016	7	73% 2017
5b1 eHealth Services % individuals	49% 2017	1	NA		18%

The government is continuing to drive the digitisation of public services also in local government. In the legislative reform package for social and healthcare services which the parliament plans to adopt in spring 2018, increased use of digital and electronic services is expected to increase productivity and improve cost efficiency. Already the Finnish Electronic Patient Record system (KanTa) allows every citizen to access their medical records, as well as prescription services. Physicians also use this database not only to view patient records, but also to gain access to the Picture Archiving and Communications System, where they can see and send relevant information to other entities within the healthcare system.

In July 2017, the eGovernment portal Suomi.fi was revamped, merging the former Suomi.fi portal for citizens and Suomi.fi Workspace pages for authorities' services, while the activities of EnterpriseFinland.fi were added by the end of 2017. It now provides the possibility for citizens to get to know their own information in the authorities' registers; a single sign-on for different organisations' e-services is scheduled for 2018. It plans also to enable an e-Authorizations service which offers the possibility of verifying the legal right of a person to act on behalf of another person or a company. Another new service will enable citizens to receive email sent by various authorities, such as decisions, instructions and notifications. Contents for different life events are published in three languages (Finnish, English and Swedish).

¹¹ 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.