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PART 32/62

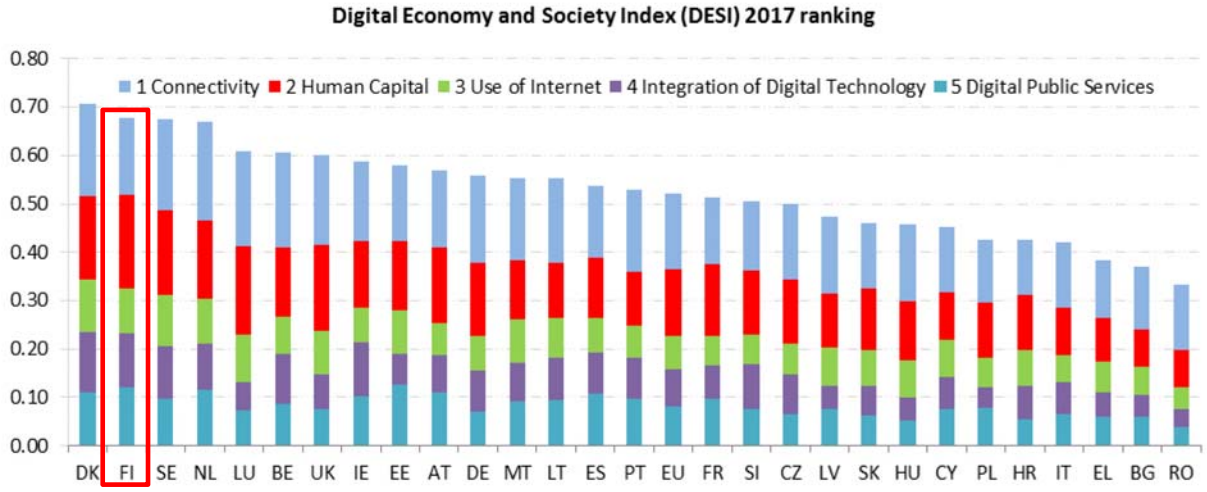
COMMISSION STAFF WORKING DOCUMENT

Europe's Digital Progress Report 2017

Europe's Digital Progress Report (EDPR) 2017 Country Profile Finland

Europe's Digital Progress Report (EDPR) tracks the progress made by Member States in terms of their digitisation, combining quantitative evidence from the Digital Economy and Society Index (DESI)[1] with qualitative information on country-specific policies. 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	Citizens' use of content, communication and online transactions
4 Integration of Digital Technology	Business digitisation and eCommerce
5 Digital Public Services	eGovernment



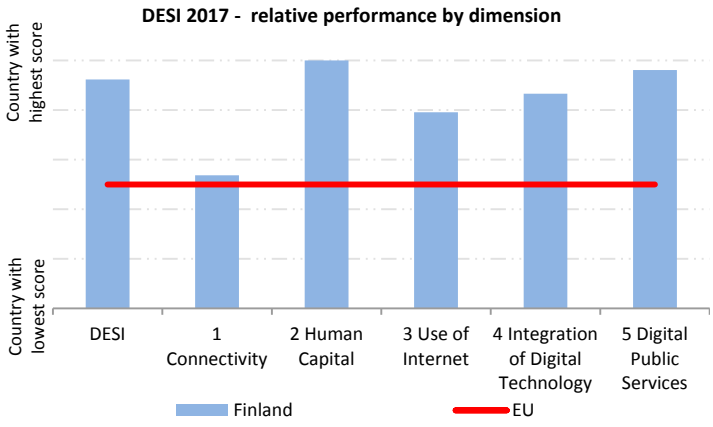
[1] https://ec.europa.eu/digital-single-market/en/desi

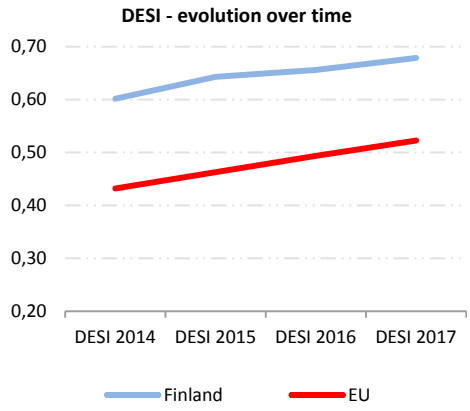
	Finland		Cluster	EU
	rank	score	score	score
DESI 2017	**2**	**0.68**	**0.63**	**0.52**
DESI 2016[2]	2	0.66	0.60	0.49

Finland ranks 2nd out of the 28 EU Member States. Overall, it progressed roughly in line with the EU average over the last year, which is quite a good performance given its already high starting levels. It scores among the top 5 in four out of the five dimensions; only regarding connectivity is it ranked somewhat lower due partly to fixed-mobile substitution. Finland's greatest digital strength remains its level of human capital, which is also reflected in the other dimensions, where high scores are possible because the digital skills are so high, followed by digital public services. Regarding the integration of digital technologies, it pulled further away from the EU average, while on the use of Internet services, progress was more muted. All in all, Finland is not only among the best EU coutnries but a world leader in digitisation.

Finland belongs to the High performing cluster of countries[3].

In January 2016, Finland published an "Action plan for the implementation of the key project and reforms defined in the Strategic Government Programme"[4], which covers digital issues extensively.





[2] The DESI 2016 was re-calculated 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.

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

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

1 Connectivity

1 Connectivity	Finland		Cluster	EU
	rank	score	score	score
DESI 2017	**12**	**0.64**	**0.75**	**0.63**
DESI 2016	12	0.62	0.73	0.59

	Finland					EU
	DESI 2017			DESI 2016		DESI 2017
	value		rank	value	rank	value
1a1 Fixed Broadband Coverage % households	**97%** 2016	→	**18**	**97%** 2015	**17**	**98%** 2016
1a2 Fixed Broadband Take-up % households	**61%** 2016	↑	**25**	**59%** 2015	**25**	**74%** 2016
1b1 Mobile Broadband Take-up Subscriptions per 100 people	**147** June 2016	↑	**1**	**139** June 2015	**1**	**84** June 2016
1b2 4G coverage[5] % households (average of operators)	**97%** 2016		**3**	**NA**		**84%** 2016
1b3 Spectrum[6] % of the target	**76%** 2016	↑	**8**	**75%** 2015	**9**	**68%** 2016
1c1 NGA Coverage % households	**75%** 2016	→	**21**	**75%** 2015	**19**	**76%** 2016
1c2 Subscriptions to Fast Broadband % subscriptions >= 30Mbps	**35%** June 2016	↑	**18**	**31%** June 2015	**15**	**37%** June 2016
1d1 Fixed Broadband Price[7] % income	**0.8%** price 2016, income 2015	→	**3**	**0.8%** price 2015, income 2015	**2**	**1.2%** price 2016, income 2015

With an overall Connectivity score of 0.64, Finland ranks 12th among the EU Member States.

Fixed broadband is available to 97% of households, despite the specific geographical characteristics of the country. Nevertheless, fixed broadband take-up at 61% is significantly behind the EU average of 74%. Besides, only 35% of households with fixed broadband chose to have subscription to fast broadband (at 30 Mbps or above), thus slightly below the EU average of 37%. One of the reasons for the relatively low usage 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 147 in June 2016 (subscriptions per 100 subscribers) against 84 for the EU over the same period.

[5] This is a new DESI indicator measuring the average coverage of telecom operators' 4G networks.

[6] There is a decrease in most of the Member States due to the additional EU harmonisation of the 700 MHz band in April 2016.

[7] Due to a slight methodological change, historical data was re-calculated.

Finland's "Fast Broadband project" was launched in December 2008 by Government resolution. The aim of the project was to ensure with State Aid that fast broadband networks are built in areas where their commercial availability is unlikely. More specifically, the goal of the "Fast Broadband project" was to ensure that, by the end of 2015, more than 99% of users would live permanently or have a permanent business establishment within two kilometers from a network that enables a 100 Mbps broadband connection. According to data made available by the National Regulator, FICORA, at the end of 2015, roughly 52% of Finnish households had access to a fast broadband connection of 100 Mbps.

The supply rate of fast broadband using fibre-optic technology is approximately 31%. In Finland, the largest operators have been unwilling to invest in FTTH networks. In general, the FTTH roll out has been slow and FTTH availability is unequal in different parts of the country. While state aid for broadband construction has accelerated FTTH roll-out in some parts of the rural areas, some sparsely populated areas still offer very little population coverage for fibre-optic broadband.

While Finland performs very well in terms of fixed broadband coverage in general and mobile broadband take-up in particular, one challenge still to be addressed is the improvement of FTTH roll-out in sparsely populated areas. Incentive measures aimed at promoting roll-out in these areas might help generate positive results notably via the availability of financial instruments.

2 Human Capital

2 Human Capital	Finland		Cluster	EU
	rank	score	score	score
DESI 2017	**1**	**0.76**	**0.68**	**0.55**
DESI 2016	1	0.76	0.66	0.53

	Finland					EU
	DESI 2017			DESI 2016		DESI 2017
	value		rank	value	rank	value
2a1 Internet Users	**91%**	↑	**5**	**90%**	**4**	**79%**
% individuals	2016			2015		2016
2a2 At Least Basic Digital Skills	**73%**	↓	**4**	**74%**	**3**	**56%**
% individuals	2016			2015		2016
2b1 ICT Specialists[8]	**6.5%**	↑	**1**	**6.4%**	**1**	**3.5%**
% employed individuals	2015			2014		2015
2b2 STEM Graduates	**22**	→	**5**	**22**	**4**	**19**
Per 1000 individuals (aged 20-29)	2014			2013		2014

Finland is a country with very high digital skills, especially regarding the share of ICT specialists in its work force. While these very high levels make further progress difficult, it is important to note that other countries are slowly catching up, reducing Finland's competitive advantage in this respect. Also, even the relatively high score of citizens with at least basic digital skills leaves a significant proportion of the population which are missing these skills.

For these reasons, digital skills and education remain a priority for the authorities. The Government's strategic 'Vision: Finland 2025' has selected five priority areas, one of which is skills and education (Prime Minister's Office 2016). It describes six key projects, one of which is "New learning environments and digital materials for basic education," in order to integrate digital technologies better into education activities. Indeed, although a recent government report[9] shows that 70 % of basic education school teachers have a positive attitude to ICT, only about half of teachers feel they have basic digital skills and 20 % report significant shortcomings. About half of teachers use ICT on a weekly basis, but students use it less often for educational purposes. To improve this, the introduction of digital materials and new

[8] Historical data have been revised by Eurostat.

[9] Report on Digitalisation in the learning environments of comprehensive schools and teachers' skills in exploiting digital learning environments (2016), http://valtioneuvosto.fi/en/article/-/asset_publisher/10616/selvitys-perusopetuksen-digitalisaatiosta-valmistunut

learning environments will be facilitated through digital-pedagogic supplementary training[10]. Digital literacy is well embedded in the ongoing curriculum reform.

10

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

3 Use of Internet

3 Use of Internet	Finland		Cluster	EU
	rank	score	score	score
DESI 2017	**5**	**0.62**	**0.60**	**0.48**
DESI 2016	3	0.60	0.57	0.45

	Finland					EU
	DESI 2017			DESI 2016		DESI 2017
	value		rank	value	rank	value
3a1 News % individuals who used Internet in the last 3 months	**85%** 2016	↓	**7**	**89%** 2015	**3**	**70%** 2016
3a2 Music, Videos and Games[11] % individuals who used Internet in the last 3 months	**91%** 2016		**2**	**NA**		**78%** 2016
3a3 Video on Demand[12] % individuals who used Internet in the last 3 months	**37%** 2016		**4**	**NA**		**21%** 2016
3b1 Video Calls % individuals who used Internet in the last 3 months	**34%** 2016	↑	**24**	**29%** 2015	**27**	**39%** 2016
3b2 Social Networks % individuals who used Internet in the last 3 months	**66%** 2016	↑	**21**	**63%** 2015	**21**	**63%** 2016
3c1 Banking % individuals who used Internet in the last 3 months	**92%** 2016	↓	**1**	**93%** 2015	**1**	**59%** 2016
3c2 Shopping % internet users (last year)	**72%** 2016	↓	**8**	**75%** 2015	**7**	**66%** 2016

Regarding the use of Internet services, Finland scores significantly above the EU average. Online banking has been used by more than 90% of Internet users since 2012 in Finland; given the near universal use of Internet, it now stands at more than 86% of all citizens. Finns are also very avid users of online music, video and games; and relatively strong users of video on demand. Online shopping among Internet users has remained, just like online banking, at its current levels for the last four years, while the EU average rose by 7 percentage points, bringing Finland closer to the average. Finally, when it comes to video on demand or video calls, Finland is still in the lower part of the EU ranking despite some increasing use, especially of video calls.

[11] Break in series due to a change in the Eurostat survey.

[12] Break in series due to a change of data source. New source is Eurostat.

4 Integration of Digital Technology

4 Integration of Digital Technology	Finland		Cluster	EU
	rank	score	score	score
DESI 2017	**3**	**0.56**	**0.44**	**0.37**
DESI 2016	4	0.50	0.41	0.35

	Finland				EU
	DESI 2017		DESI 2016		DESI 2017
	value	rank	value	rank	value
4a1 Electronic Information Sharing	**37%**	**13**	**37%**	**13**	**36%**
% enterprises	2015		2015		2015
4a2 RFID	**5.8%**	**6**	**5.8%**	**6**	**3.9%**
% enterprises	2014		2014		2014
4a3 Social Media	**26%** ↑	**7**	**21%**	**8**	**20%**
% enterprises	2016		2015		2016
4a4 eInvoices	**72%**	**1**	**NA**		**18%**
% enterprises	2016		2015		2016
4a5 Cloud	**40%** ↑	**1**	**37%**	**1**	**13%**
% enterprises	2016		2015		2016
4b1 SMEs Selling Online	**17%** ↑	**13**	**15%**	**16**	**17%**
% SMEs	2016		2015		2016
4b2 eCommerce Turnover	**NA**		**NA**		**9.4%**
% SME turnover	2016		2015		2016
4b3 Selling Online Cross-border	**5.8%**	**21**	**5.8%**	**21**	**7.5%**
% SMEs	2015		2015		2015

Finnish enterprises are among the most advanced businesses in Europe when it come to the use of digital technologies, although for such a digitally advanced economy the share of SMEs selling online is quite low. Further increasing the use of digital technologies by businesses is the object of several recent policy initiatives[13]. One programme focuses specifically on identifying digital service platforms and ecosystems, and on fostering their growth. Another one seeks to build a growth environment for digital transport services. A third approach is to foster the development and more widespread use of robotics and automation solutions. Yet another aims to increase usage of big data and business based on big data in Finland, by eliminating unnecessary hindrances and bottlenecks in the leveraging and dissemination of data.

Moreover, on 19 April 2016 the government published an Information security strategy[14] with the stated objective of making Finland "The The World's Most Trusted Digital Business Environment". According to this strategy, the authorities will provide assistance and support for companies in integrating information security in their business. Also, a working group of

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

[14] https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/78416/Publications_9-2016_Information_Security_Strategy_for_Finland.pdf?sequence=1

authorities and businesses will be established to improve the prevention and countering of offences targeting companies.

5 Digital Public Services

5 Digital Public Services	Finland		Cluster	EU
	rank	score	score	score
DESI 2017	**2**	**0.82**	**0.59**	**0.55**
DESI 2016	1	0.81	0.57	0.51

	Finland				EU
	DESI 2017			DESI 2016	DESI 2017
	value	rank	value	rank	value
5a1 eGovernment Users ↑ % internet users (last year)	**64%** 2016	**3**	**63%** 2015	**3**	**34%** 2016
5a2 Pre-filled Forms ↓ Score (0 to 100)	**82** 2016	**3**	**87** 2015	**3**	**49** 2016
5a3 Online Service Completion → Score (0 to 100)	**93** 2016	**6**	**93** 2015	**6**	**82** 2016
5a4 Open Data[15] ↑ % of maximum score	**76%** 2016	**7**	**70%** 2015	**3**	**59%** 2016

The government is continuing to drive the digitisation of public services, including local government. Following the development of the common principles for all digital public services, the government has foreseen 100 mio € by the end of 2018 for administrative branches and local authorities to commit to client-oriented automation and the digitisation of their practices[16].

As part of the is process it will also implement the once-only principle, request information only once and then use it for all applications, by January 2019. To do so, a one-stop-shop service model will be developed for client-oriented usage of essential national databases. There will be new open interfaces for accessing the national service architecture, a management solution for core data in the public administration will be created, and distribution of public data will be increased. To ensue legislative coherence, a new Information Management Act will bring together the general provisions currently found in several laws covering the management, availability, use and archiving of information. Theisnew Information Management Act will establish a unified operating model for information management, the use of databases and citizens' rights.

Meanwhile, some unemployment funds – either private or administered by the trade unions - are making attempts to digitise their systems to make the application and decision process faster.

[15] Change of data source. The historical data have also been restated. The new source is the European Data Portal.

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

Highlight 2017:[17] cross-border data exchange platform[18]

In May 2016 Finland and Estonia adopted a joint declaration on an initial road map for launching a data exchange and e-services between the two countries, setting an example for other states. The data exchange between Finland and Estonia, which makes the databases mutually available, aims to offer better public services to citizens and businesses that operate across the borders.

This concerns data such as commercial registers, population registers, social insurance benefits, digital prescriptions and maritime data as well as, in a second step, tax data, educational qualifications, digital health records.

Both countries use the same data exchange platform, based on the Estonian X-Road and the Finnish *Palveluväylä* systems, which makes the exchange of data technically easy and cost-efficient. The main remaining obstacles are of an administrative and legal nature.

[17] "Highlight 2016": ePrescriptions without borders
ePrescriptions now make up over 90% of all prescription services in public and private health care in Finland as well as in Sweden. Joining the Finnish ePrescription Centre is mandatory and, from 2017, ePrescriptions will be the only option available for dispensing medication. A pilot project in the Tornio valley established a functioning cross-border ePrescription service between Finland and Sweden. The pilot project implemented cross-border ePrescription services in four pharmacies in Sweden and three in Finland. The challenges encountered in the project were primarily legal and organisational in nature, though these were overcome by implementing specific amendments to the existing ePrescription laws in both countries

[18] http://estonianworld.com/technology/estonia-and-finland-move-towards-cross-border-data-exchange/