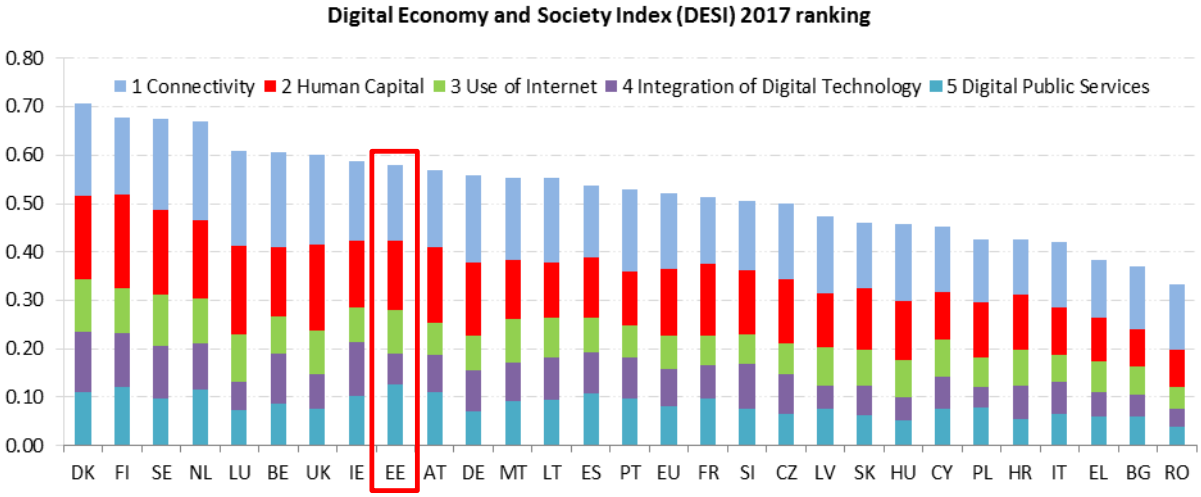
Europe's Digital Progress Report (EDPR) 2017 Country Profile Estonia

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



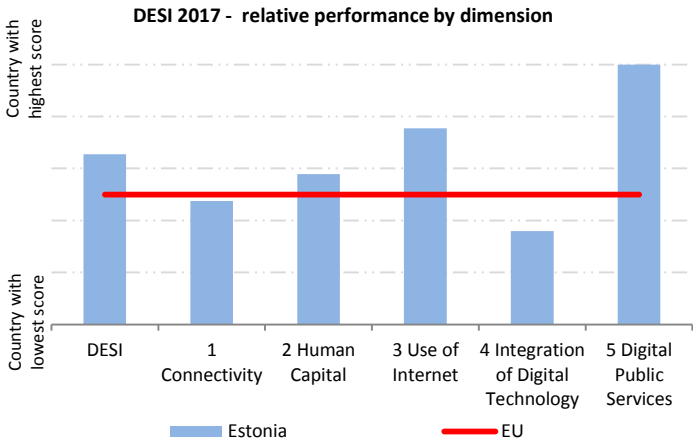
[1] https://ec.europa.eu/digital-single-market/en/desi

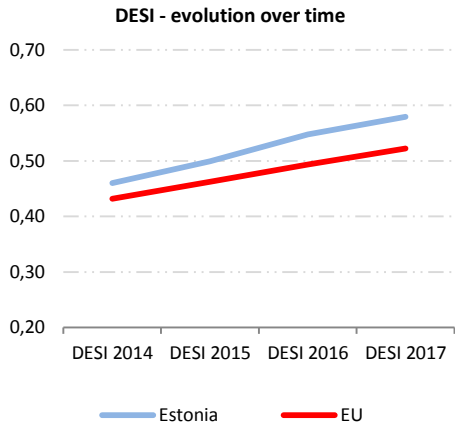
	Estonia		Cluster	EU
	rank	score	score	score
DESI 2017	**9**	**0.58**	**0.63**	**0.52**
DESI 2016[2]	9	0.55	0.60	0.49

Estonia ranks 9th out of the 28 EU Member States. Overall, it slowly progressed over the last year. Estonia is the European champion for online provision of public services, and Estonians are well-skilled in the use of digital technologies and keen users of a variety of internet services. As for broadband, it is strong on mobile, but has low fixed broadband coverage despite progress over the past year. The key challenge in Estonia is the digitisation of companies.

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

The current Estonian Digital Agenda[4] sets out the general objective to "contribute to achieving higher growth, more jobs and increased welfare by creating an environment supporting the use and development of ICT solutions". It sets out a vision, principles, sub-objectives and measures with targets, indicators and action lines. The implementation of the strategy in Estonia is steered by the e-Estonia Council led by the Prime Minister.





[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] https://www.mkm.ee/sites/default/files/digital_agenda_2020_estonia_engf.pdf

1 Connectivity

1 Connectivity	Estonia		Cluster	EU
	rank	score	score	score
DESI 2017	**17**	**0.62**	**0.75**	**0.63**
DESI 2016	17	0.57	0.73	0.59

	Estonia					EU
	DESI 2017			DESI 2016		DESI 2017
	value		rank	value	rank	value
1a1 Fixed Broadband Coverage % households	**91%** 2016	↑	**25**	**87%** 2015	**26**	**98%** 2016
1a2 Fixed Broadband Take-up % households	**77%** 2016	→	**8**	**77%** 2015	**7**	**74%** 2016
1b1 Mobile Broadband Take-up Subscriptions per 100 people	**116** June 2016	↑	**4**	**105** June 2015	**4**	**84** June 2016
1b2 4G coverage[5] % households (average of operators)	**94%** 2016		**8**	**NA**		**84%** 2016
1b3 Spectrum[6] % of the target	**80%** 2016	↓	**7**	**84%** 2015	**6**	**68%** 2016
1c1 NGA Coverage % households	**79%** 2016	↑	**18**	**78%** 2015	**16**	**76%** 2016
1c2 Subscriptions to Fast Broadband % subscriptions >= 30Mbps	**31%** June 2016	↑	**20**	**27%** June 2015	**20**	**37%** June 2016
1d1 Fixed Broadband Price[7] % income	**1.2%** price 2016, income 2015	→	**14**	**1.2%** price 2015, income 2015	**14**	**1.2%** price 2016, income 2015

With an overall Connectivity score of 0.62, Estonia retains the 17th position among EU countries.

Despite a slight increase in fixed broadband coverage Estonia remains significantly below the EU average, occupying the 25th rank, partly due to low coverage in rural areas. Despite these relatively low figures, take-up of fixed broadband remains well above the EU average: Estonia ranks 8th. Estonia has continued to increase its number of mobile broadband subscriptions (thereby ranking 4th). Estonia is also doing quite well when it comes to 4G coverage (94%) and assigned spectrum (80% assigned). Subscriptions to fast broadband (equal or above 30Mbps) have increased slightly, but are still below the EU average. The cost to subscribe to a fixed broadband connection remains at 1.2% of the gross income, which is equal to the EU average and consistent with fixed broadband take-up in Estonia.

[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.

In 2016, Estonia continued to implement its 2014 "Digital Agenda 2020 for Estonia": the country aims at providing all residents with internet access above 30 Mbps by 2020, and achieving at least 60 % household subscription rates for speeds above 100 Mbps.

The Estonian Technical Regulatory Authority ("ETRA"), which is the national regulatory authority (NRA), has recently developed a website www.netikaart.ee where information is available about fixed and mobile connectivity capabilities at household level.

The lack of fixed broadband coverage in rural areas is being tackled with the EstWin project. This project aims to build a total of 6600 km of backhaul networks in rural areas by 2018. Once completed, 98 % of all households, businesses and institutions in Estonia should be located no further than 1.5 km from the nearest network access point. Approximately 15 % of network construction cost is co-financed by backhaul network operators, while approximately 85 % of financing is covered by ERDF funds. At the end of 2016, roughly two thirds of the network had been built, i.e. approximately 4400 km of network cables have been deployed and 950 km are currently under construction. So far, it appears that the last mile has not been deployed however. In November 2016, the Estonian Ministry of Economic Affairs and Communications completed an analysis of the last mile high speed connection, which suggests building the last mile in rural areas with a mix of fibre-optic cables, copper pairs and different radio links, including mobile and fixed radio links.

Estonia recently adopted an Amendment to the Estonian Building Code and the Act to Implement the Building Code and the Planning Act, which are meant to transpose Directive 2014/61/EU into national law. These two Acts came into force on 1 January 2017.

Further efforts in deploying broadband in rural areas would impact positively on the country's overall connectivity. In particular, the effective deployment of the last mile appears to be a challenge. The (late) transposition of the Broadband Cost Reduction Directive may help in this respect. Estonia plans to undertake a mid-term evaluation of the implementation of its strategy in 2017. This may result in updating existing targets or instruments taking into account the state of the art.

2 Human Capital

2 Human Capital	Estonia		Cluster	EU
	rank	score	score	score
DESI 2017	**10**	**0.58**	**0.68**	**0.55**
DESI 2016	9	0.58	0.66	0.53

	Estonia				EU
	DESI 2017		DESI 2016		DESI 2017
	value	rank	value	rank	value
2a1 Internet Users % individuals	**85%** ↓ 2016	**8**	**86%** 2015	**7**	**79%** 2016
2a2 At Least Basic Digital Skills % individuals	**60%** ↓ 2016	**10**	**65%** 2015	**8**	**56%** 2016
2b1 ICT Specialists[8] % employed individuals	**4.4%** ↑ 2015	**6**	**3.9%** 2014	**8**	**3.5%** 2015
2b2 STEM Graduates Per 1000 individuals (aged 20-29)	**14** → 2014	**24**	**14** 2013	**21**	**19** 2014

In the Human Capital dimension Estonia is performing just above the EU average. Estonia ranks 10th and did not progress over the last year. The number of Internet users has been constant whilst the share of individuals with at least basic digital skills decreased. The share of ICT Specialists as a percentage of the workforce is well above the EU average and Estonia is now ranking 6th (compared to 8th last year). The number of graduates in science and technology is not increasing and Estonia fell well behind the EU average, now ranking 24th. 59% of companies reported difficulties in recruiting ICT specialists, the 6th highest number in the EU.

Estonia recognises the importance of digital skills for competiveness and economic growth and digital skills are a policy priority. One of the four sub-objectives in the current Digital Agenda is “better ICT skills for more jobs with higher added value, increased international competitiveness and higher quality of life”. This covers both skills needed for everyday life as well as skills for the workforce. The Estonian Lifelong Learning Strategy 2020 has "A digital focus in lifelong learning" as one of five priorities and there are several action lines that will be implemented through the strategy. The vision for 2020 is that "Modern digital technology is used for learning and teaching effectively and efficiently." Part of the long term solution to address digital skills gaps lies with formal education. In order to improve the quality of teaching and learning in the ICT field in higher education, the Estonian ministry of education and research, in cooperation with the private sector, launched an IT academy programme in 2012.

These actions should have a positive impact on digital skills in Estonia. A national coalition for digital skills and jobs could very well act as an implementation and follow up mechanism for the Estonian Government. Addressing this skills gap in terms of filling ICT specialist vacancies would help the country to be competitive in the digital economy.

[8] Historical data have been revised by Eurostat.

3 Use of Internet

3 Use of Internet	Estonia		Cluster	EU
	rank	score	score	score
DESI 2017	**6**	**0.60**	**0.60**	**0.48**
DESI 2016	5	0.59	0.57	0.45

	Estonia				EU
	DESI 2017		DESI 2016		DESI 2017
	value	rank	value	rank	value
3a1 News % individuals who used Internet in the last 3 months	**89%** ↓ 2016	**3**	**91%** 2015	**2**	**70%** 2016
3a2 Music, Videos and Games[9] % individuals who used Internet in the last 3 months	**84%** 2016	**9**	**NA**		**78%** 2016
3a3 Video on Demand[10] % individuals who used Internet in the last 3 months	**24%** 2016	**9**	**NA**		**21%** 2016
3b1 Video Calls % individuals who used Internet in the last 3 months	**47%** ↑ 2016	**12**	**46%** 2015	**8**	**39%** 2016
3b2 Social Networks % individuals who used Internet in the last 3 months	**66%** ↑ 2016	**20**	**63%** 2015	**20**	**63%** 2016
3c1 Banking % individuals who used Internet in the last 3 months	**90%** ↓ 2016	**4**	**91%** 2015	**2**	**59%** 2016
3c2 Shopping % internet users (last year)	**64%** ↓ 2016	**13**	**66%** 2015	**10**	**66%** 2016

Estonia ranks 6th among all the EU countries in the use of Internet dimension. They are commonly consuming news online and 90% of the Internet users also use online banking services. Consumption of music, video and games content by Estonians is at levels comparable with the EU average. In general Estonians place above the EU average in almost all categories, with the exception of online shopping where they still are close to the average.

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

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

4 Integration of Digital Technology

4 Integration of Digital Technology	Estonia		Cluster	EU
	rank	score	score	score
DESI 2017	**20**	**0.32**	**0.44**	**0.37**
DESI 2016	21	0.27	0.41	0.35

	Estonia				EU
	DESI 2017		DESI 2016		DESI 2017
	value	rank	value	rank	value
4a1 Electronic Information Sharing % enterprises	**22%** 2015	**23**	**22%** 2015	**23**	**36%** 2015
4a2 RFID % enterprises	**2.7%** 2014	**25**	**2.7%** 2014	**25**	**3.9%** 2014
4a3 Social Media % enterprises	**12%** ↑ 2016	**23**	**9%** 2015	**25**	**20%** 2016
4a4 eInvoices % enterprises	**19%** ↑ 2016	**12**	**14%** 2015	**11**	**18%** 2016
4a5 Cloud % enterprises	**17%** 2016	**8**	**NA** 2015		**13%** 2016
4b1 SMEs Selling Online % SMEs	**15%** ↑ 2016	**16**	**12%** 2015	**19**	**17%** 2016
4b2 eCommerce Turnover % SME turnover	**10.7%** ↑ 2016	**8**	**8.1%** 2015	**15**	**9.4%** 2016
4b3 Selling Online Cross-border % SMEs	**6.1%** 2015	**19**	**6.1%** 2015	**19**	**7.5%** 2015

In Integration of Digital Technology by businesses, Estonia ranks 20th in DESI 2017, its weakest score across the five dimensions. Over the past year Estonia progressed more than the EU average in this dimension; in particular more SMEs sell over the Internet. eCommerce turnover increased accordingly but cross-border sales are still below the EU average. Estonia scores very well when it comes to the distribution of mobile devices to employees and has a strong performance in ICT startups[11].

Given the strong record in ICT startups, other companies encounter problems in finding ICT specialists. This might be a reason for the mixed performance in terms of Integration of Digital Technologies.

Estonia does not have a specific strategy in place for the digitisation of its economy. Emphasis is rather put on the creation of an enabling environment for digital innovation, including the necessary infrastructure and skills as well as a general entrepreneurial policy[12].

[11] Digital Transformation Scoreboard 2017: http://ec.europa.eu/growth/tools-databases/newsroom/cf/itemdetail.cfm?item_id=9076

[12] The Estonian Entrepreneurship Growth Strategy 2020 http://kasvustrateegia.mkm.ee/index_eng.html sets out the vision that by 2020: "The Estonian innovation and entrepreneurial policy will have considerably improved the welfare of Estonian citizens and enhanced Estonia's integration in the international economy as well as the competitiveness of its enterprises". It focuses on three main challenges: increasing productivity, stimulating entrepreneurship and encouraging innovation.

Given that Estonia currently lags behind in this dimension, these more general strategies might be complemented by some more targeted initiatives.

Highlight 2017:[13] Delivery robots

Starship, an Estonian startup founded in the summer of 2014, is one of the world's leading companies to explore deliveries by robot, both for parcels and food. The company, co-founded and headed by Ahti Heinla, a developer who was also involved in the founding of Skype and file sharing service KaZaA, is running pilot projects in Estonia, the UK, Switzerland, Germany and in the United States.

The six-wheeled delivery robot can carry up to 10 kilograms or three shopping bags within a 5km radius.

Parcels and groceries are directly delivered from stores or specialised hubs, at the time that the client requests via a mobile app. It takes 5 to 30 minutes for the shipment to arrive and the robots' entire journey can be monitored on a smartphone.

The robot can direct itself and avoid obstacles using a GPS signal and nine cameras, but it is also monitored remotely at all times.

Robots have now[14] encountered 2.8 million people and roamed the streets of 58 cities.

[13] Highlihgt 2016: e-Residency in Estonia
Estonia is the first country to offer e-Residency — a digital identity available to anyone in the world interested in administering a location-independent business online. eResidents receive a smart ID card which provides digital identification and authentication, signing of documents, verification of document authenticity and document encryption. A holder of e-residence may for example register his or her business electronically and sign business documents without having to physically be in Estonia. For more, visit https://e-estonia.com/e-residents/welcome/

[14] January 2017

5 Digital Public Services

5 Digital Public Services	Estonia		Cluster	EU
	rank	score	score	score
DESI 2017	**1**	**0.84**	**0.59**	**0.55**
DESI 2016	2	0.80	0.57	0.51

	Estonia				EU
	DESI 2017		DESI 2016		DESI 2017
	value	rank	value	rank	value
5a1 eGovernment Users % internet users (last year)	**78%** ↓ 2016	**1**	**80%** 2015	**1**	**34%** 2016
5a2 Pre-filled Forms Score (0 to 100)	**89** ↓ 2016	**2**	**95** 2015	**1**	**49** 2016
5a3 Online Service Completion Score (0 to 100)	**97** ↑ 2016	**2**	**96** 2015	**4**	**82** 2016
5a4 Open Data[15] % of maximum score	**55%** ↑ 2016	**17**	**29%** 2015	**23**	**59%** 2016

This is the section where Estonia is performing best. Estonia has been at the forefront of online public services for a few years and is now the best performing country in Europe. Its share of eGovernment users (78%) is the highest in Europe and regarding use of pre-filled forms and online service-completion, Estonia ranks second amongst Member States. Estonia over the last nearly doubled the share of Open Data, from 29% in 2015 to 55% in 2016.

The e-Estonia digital society has been made possible largely by its open, decentralized system which links together various services and databases. The flexibility provided by this open set-up has allowed new components to be added over the years. Features include for example i-voting (voting in elections from home), filing income tax return, signing legally-binding contracts from anywhere in the world, via the mobile phone or opening a bank account via video call. The e-government systems used in Estonia aim to create an atmosphere of openness and trust. Anyone can log into e-Law to follow draft legislation. In the state portal, citizens can see their own government-held records, check who has reviewed data, and in some cases, set limits to access.

Estonia is a role model in Europe when it comes to facilitating citizens' lives and developing creative digital solutions in and for the public sector.

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