# Digital Economy and Society Index (DESI)[1] 2018 Country Report – Sweden

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 has been 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

Digital Economy and Society Index (DESI) 2018 ranking
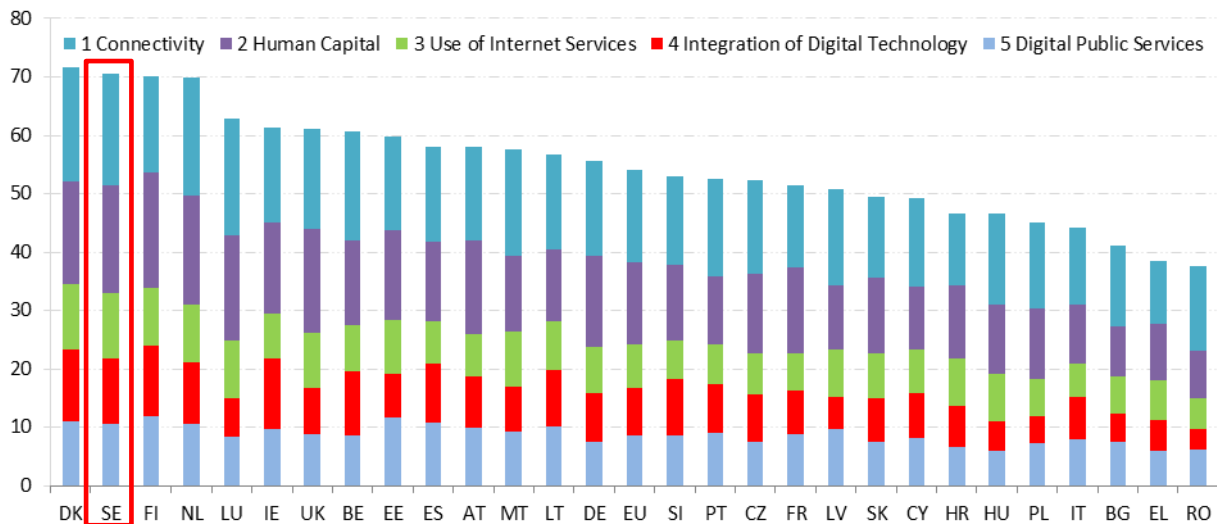
	Sweden		Cluster	EU
	rank	score	score	score
DESI 2018	**2**	**70.4**	**64.0**	**54.0**
DESI 2017	3	67.0	61.2	50.8

In DESI 2018, Sweden now ranks 2nd after Denmark. Overall progress is in line with the EU average as well as the countries in the high-performance cluster[2].

Sweden is well connected and ranks 4th in the EU. However, reaching the remaining remote regions is a challenge. 95 % of Swedes are online and make good use of a variety of services. In human capital, Sweden ranks third and shows progress in all DESI dimensions. Despite having the second highest number of ICT specialists in the workforce, demand exceeds supply and the relatively low numbers of STEM graduates are not expected to increase in the coming years. Swedish businesses actively use digital technologies to improve efficiency, productivity and sales and the country continues to rank 4th. In digital public services Sweden now ranks 5th, but open data is still an area where Sweden's performance is relatively weak.

In May 2017, the Swedish government adopted a digitisation strategy[3] that focuses on five areas: digital skills, digital security, digital innovation, digital leadership and digital infrastructure. Sweden aims to become the world leader in harnessing the opportunities of digital transformation. To support the implementation of the strategy, a Digitalisation Council4 has been set up. It consists of 10 advisors, including the Digital Champion, led by the Minister of Digitalisation.

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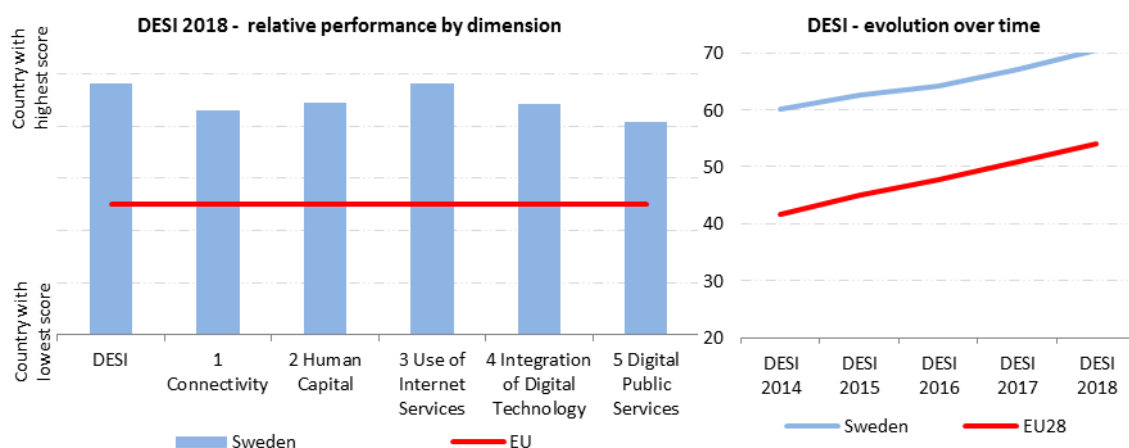
[2] High-performing countries are Denmark, Sweden, Finland, the Netherlands, Luxembourg, Ireland, the UK, Belgium and Estonia.
[3] Swedish Digitalisation Strategy
[4] Digitaliseringsrådet

1 Connectivity

1 Connectivity	Sweden		Cluster	EU
	rank	score	score	score
DESI 2018	**4**	**76.0**	**71.9**	**62.6**
DESI 2017	5	72.5	67.9	58.5

	Sweden					EU
	DESI 2018			DESI 2017		DESI 2018
	value		rank	value	rank	value
1a1 Fixed Broadband Coverage	99%	→	14	99%	13	97%
% households	2017			2016		2017
1a2 Fixed Broadband Take-up	78%	↑	8	72%	14	75%
% households	2017			2016		2017
1b1 4G Coverage	100%	→	1	100%	1	91%
% households (average of operators)	2017			2016		2017
1b2 Mobile Broadband Take-up	123	↑	6	120	3	90
Subscriptions per 100 people	2017			2016		2017
1c1 Fast Broadband (NGA) Coverage	78%	↑	21	75%	19	80%
% households covered by VDSL, FTTP or Docsis 3.0	2017			2016		2017
1c2 Fast Broadband Take-up	57%	↑	3	45%	5	33%
% homes subscribing to >= 30Mbps	2017			2016		2017
1d1 Ultrafast Broadband Coverage	73%		14	NA		58%
% households covered by FTTP or Docsis 3.0	2017					2017
1d2 Ultrafast Broadband Take-up	47.5%	↑	1	35.5%	1	15.4%
% homes subscribing to >= 100Mbps	2017			2016		2017
1e1 Broadband Price Index	87	↓	13	97	1	87
Score (0 to 100)	2017			2016		2017

Sweden ranks 4th in connectivity among the EU Member States and scores well above the EU average (with a score of 76 against 62.6 for the EU). Take-up of fixed broadband increased over the past year from 72 % in 2016 to 78 % in 2017. The share of fast broadband connections (providing at least 30 Mbps) is significantly higher than the EU average (57 % compared with 33 % across the EU) and has increased since last year, when it stood at 45 %. Sweden is also approaching a 50 % take-up rate for ultrafast broadband, over three times the EU average.

Sweden's broadband strategy, as adopted in December 2016, aims at having a completely connected country by 2025 and has the following three objectives: by 2020, 95 % (as opposed to the initial 90 % target) of all households and businesses should have access to broadband of at least 100 Mbps; by 2023 the whole country should have access to stable mobile services of good quality; by 2025 the whole country should have access to high-speed broadband.

Sweden is a front runner on high speed internet connectivity in the EU. Nevertheless, the remaining sparsely populated areas are increasingly difficult to cover. In those areas, operators have fewer incentives to invest due to decreasing economic profitability, but also time-consuming permit processes for broadband roll-out. In order to expand high speed internet connectivity to those remote areas, broadband infrastructure roll-out might be

incentivised by simplifying the relevant administrative procedures related to obtaining a permit. Alternatively, any unwillingness to invest on the part of private operators might be offset by more public funding to help roll out broadband infrastructure in these remote areas.

Both of the issues mentioned above have been taken into account in Sweden's broadband strategy. As recommended in the strategy, the Swedish Post and Telecom Authority, PTS, has been given the task of analysing ways to make administrative permit-related processes more efficient.

As to funding, government funds for broadband expansion are today allocated in the form of governmental support, mainly by way of the EAFRD, but also via the ERDF in the northern parts of the country. In order to better meet evolving connectivity needs, as stated in the broadband strategy, PTS has been given the task of reviewing the most efficient way to allocate future governmental funding. The report was delivered in November 2017[5].

It remains to be seen whether the implementation of the new broadband strategy will generate visible results by 2020.

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[5] [Framtida stödinsatser på bredbandsområdet](#)

2 Human Capital

2 Human Capital	Sweden		Cluster	EU
	rank	score	score	score
DESI 2018	**3**	**74.2**	**70.7**	**56.5**
DESI 2017	5	69.3	69.4	54.6

	Sweden				EU
	DESI 2018		**DESI 2017**		**DESI 2018**
	value	rank	value	rank	value
2a1 Internet Users % individuals	**95%** ↑ 2017	**3**	**91%** 2016	**6**	**81%** 2017
2a2 At Least Basic Digital Skills % individuals	**77%** ↑ 2017	**3**	**69%** 2016	**6**	**57%** 2017
2b1 ICT Specialists % individuals	**6.3%** ↑ 2016	**2**	**6.1%** 2015	**2**	**3.7%** 2016
2b2 STEM Graduates[6] Per 1000 individuals (aged 20-29)	**15.3** ↑ 2015	**19**	**14.6** 2014	**21**	**19.1** 2015

In 2017, Sweden made good progress and performed third best on human capital. All indicators have improved. 46 % have of Swedes have above basic digital skills, 31 % basic, 18 % low and 5 % have no digital skills at all.

Sweden continues to have the second highest number of ICT specialists. There is a comparatively high share of women working as ICT specialists (20 %) and Sweden ranks 6th in this respect. However, demand for ICT skilled workers exceeds supply and the gap may remain for many years[7]. Swedish IT and Telecom Industries8 estimates a shortage of 70 000 ICT specialists by 2022. At the same time, the number of science, technology, engineering and maths (STEM) graduates continues to lag behind many EU countries. Roughly twice as many men as women graduate in STEM. Encouraging more women to study STEM and take up work as ICT specialists could release untapped potential for the Swedish economy.

In 2017, the government adopted a national digitisation strategy for compulsory and upper secondary school[9]. The aim is that all children have adequate digital competences by 2022. The strategy focuses on four aspects of digital skills: understanding how digitisation affects the society and the individual; using and understanding digital tools and media; ensuring critical and responsible behaviour; and enabling problem solving and translating ideas into actions. Implementing the strategy involves curricula changes and training for school leaders and teachers. Digital skills will mainly be taught through the subjects of maths, civics, Swedish and technology. Programming is viewed as a tool for problem solving in all subjects

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[6] 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.

[7] Trender och prognoser 2017 – Befolkningen, Utbildningen, Arbetsmarkande med sikte på år 2035
[8] IT-komptensbristen, En rapport om den svenska digitala sektorns behov av spetskomptens
[9] Nationell strategi för digitalisering av skolväsendet

but most taught in maths lessons. In parallel, the National Agency for Education will digitise all national tests, which may serve as a catalyst for the digitisation of schools. The first digital national tests will be carried out in the autumn of 2018.

The social partners emphasise the need for life-long learning. A report[10] by the Swedish Association of Graduate Engineers underlines that despite the strong economy many companies do not allocate any budget to skills development and do not have long-term plans for how to recruit talent to their companies.

In 2018, the Swedish innovation agency will pilot short university courses[11] at advanced level for professionals in jobs which are expected to be transformed by digitisation. The courses will be developed in collaboration with universities, business and the public sector and focus on fulfilling the skills needs of large companies as well as SMEs.

One of the five areas in the national digitalisation strategy[12] adopted in 2017 addresses digital skills. It highlights the need for all citizens to contribute to and participate in a digital society; to modernise the education system including ensuring that tertiary education corresponds to students' and the labour market's need for digital skills; and to focus on life-long learning and increasing digital competences in the public sector, especially among local municipalities and authorities who deliver services to the citizens. The 2016 Smart industry strategy[13] also focuses on tackling the shortage of skilled labour.

In January 2018 stakeholders met to set up a National Digital Skills and Jobs Coalition that will be launched in 2018.

Sweden is well advanced in digital skills but the persistent lack of people with ICT specialist skills could hamper economic development.

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[10] Innovations- och konjunkturrapport. Stark ekonomi. Svag satsning på komptens. Oktober 2017.
[11] Korta specialistkurser för livslångt lärande

[12] För ett hållbart Sverige – en digitaliseringsstrategi
[13] Smart industry - a strategy for new industrialisation for Sweden

3 Use of Internet Services

3 Use of Internet Services	Sweden		Cluster	EU
	rank	score	score	score
DESI 2018	**2**	**73.4**	**63.4**	**50.5**
DESI 2017	2	71.4	60.5	47.5

	Sweden				EU
	DESI 2018		**DESI 2017**		**DESI 2018**
	value	rank	value	rank	value
3a1 News	88% ↑	6	87%	7	72%
% individuals who used Internet in the last 3 months	2017		2016		2017
3a2 Music, Videos and Games	91%	1	91%	1	78%
% individuals who used Internet in the last 3 months	2016		2016		2016
3a3 Video on Demand	49%	2	49%	2	21%
% individuals who used Internet in the last 3 months	2016		2016		2016
3b1 Video Calls	58% ↑	7	51%	8	46%
% individuals who used Internet in the last 3 months	2017		2016		2017
3b2 Social Networks	74% ↓	11	75%	7	65%
% individuals who used Internet in the last 3 months	2017		2016		2017
3c1 Banking	90% ↑	5	89%	5	61%
% individuals who used Internet in the last 3 months	2017		2016		2017
3c2 Shopping	84% ↑	2	80%	5	68%
% individuals who used Internet in the last 12 months	2017		2016		2017

Sweden tops the European country league when it comes to using the internet to listen to music watching videos and play games (91 %), using video on demand (49 %) and shopping online (84 %).

95 % of 16-74 year olds use the internet regularly. According to *The Swedes and the internet*[14] 56 % of those aged 75 and older are regular internet users and 79 % of children aged as young as two watch TV and videos or play games online. By six years of age 98 % use the internet. 90 % of Swedes do banking online. Many use mobile bank ID to identify themselves and one payment app is used by 71 % of internet users[15].

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[14] [The Swedes and the internet](#)
[15] [The Swedes and the internet](#)

4 Integration of Digital Technology

4 Integration of Digital Technology	Sweden		Cluster	EU
	rank	score	score	score
DESI 2018	**4**	**56.4**	**47.0**	**40.1**
DESI 2017	4	53.8	44.0	36.7

	Sweden				EU
	DESI 2018		**DESI 2017**		**DESI 2018**
	value	rank	value	rank	value
4a1 Electronic Information Sharing	**31%**	**15**	**NA**		**34%**
% enterprises	2017		2015		2017
4a2 RFID	**2.2%** ↓	**25**	**2.7%**	**23**	**4.2%**
% enterprises	2017		2014		2017
4a3 Social Media	**25%** ↑	**9**	**24%**	**9**	**21%**
% enterprises	2017		2016		2017
4a4 eInvoices	**NA**		**33.1%**	**4**	**NA**
% enterprises	2017		2016		2017
4a5 Cloud	**NA**		**32.7%**	**2**	**NA**
% enterprises	2017		2016		2017
4b1 SMEs Selling Online	**28.5%** ↑	**2**	**26.1%**	**3**	**17.2%**
% SMEs	2017		2016		2017
4b2 E-commerce Turnover	**15.0%** ↑	**4**	**14.7%**	**5**	**10.3%**
% SME turnover	2017		2016		2017
4b3 Selling Online Cross-border	**9.7%** →	**10**	**9.7%**	**10**	**8.4%**
% SMEs	2017		2015		2017

Swedish businesses actively use digital technologies to improve efficiency, productivity and sales.

An indicator[16] for digital maturity shows that the ICT sector, trade, other service companies and manufacturing are outperforming sectors such as construction, transport and real estate. The indicator also shows that small businesses lag behind bigger ones. The government recognises that rapid digitisation has made it difficult for smaller companies to keep up with technological developments under the Smart Industry Strategy 2030[17] and its action plan from 2016.

The Swedish research agency, Vinnova, runs 16 innovation initiatives relevant for smart industry. One example is Produktion 2030[18], which is a strategic research and innovation programme aiming to make Sweden a frontrunner in investments in sustainable production by 2030. Produktion 2030 is a public-private partnership and brings together industry, academia and research associations. In 2017, Produktion 2030 launched a call for test bed

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[16] [Digital mognad I svenskt näringsliv](#)

[17] [Smart industry - a strategy for new industrialisation for Sweden](#)

[18] [Produktion 2030](#)

projects to test new production methods and technologies or systems in the manufacturing industry.

On the start-up side, Sweden has a clear venture capital strategy and infrastructure to fund young companies and high-risk projects. Sweden will spend EUR 1.2 million by 2020 to promote investment related to smart industry. This will stimulate investors in start-ups to place or expand production, industrial services, research, development and testing in Sweden.

In 2017 the Ministry of Finance presented a public enquiry on the sharing economy[19]. It concludes that the sharing economy is still at an early stage and if larger groups of the population are to participate, more information and guidance is needed.

Swedish businesses are embracing digitisation, but more efforts could be made to address the lack of digitisation among SMEs.

Highlight 2018 – Digilyftet

Digilyftet[20] is a pilot project which aims to develop methodologies to get small and medium-sized industrial companies, including industrial service companies, interested in using digital technologies. The goals are to increase awareness about the potential of digitisation to improve competitiveness and create business value as well as to build networks and exchange practices.

The programme includes awareness raising workshops, information from companies which had already undergone digitisation and individual coaching for companies. Following Digilyftet, 58 % of companies started a digitisation project and a further 32 % were going to start in the coming months. Digilyftet was coupled by business development vouchers[21] for digitisation where companies who had taken part could apply for support for their digitisation initiative.

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[19] Delningsekonomi på användarns villkor
[20] Slutrapport Digilyftet
[21] Vouchers for digitisation of SMEs

5 Digital Public Services

5 Digital Public Services	Sweden		Cluster	EU
	rank	score	score	score
DESI 2018	**5**	**70.8**	**63.0**	**57.5**
DESI 2017	5	67.4	60.2	53.7

	Sweden				EU
	DESI 2018		DESI 2017		DESI 2018
	value	rank	value	rank	value
5a1 eGovernment Users[22] % internet users needing to submit forms	**90%** ↑ 2017	3	83% 2016	5	58% 2017
5a2 Pre-filled Forms Score (0 to 100)	**74** ↑ 2017	8	71 2016	8	53 2017
5a3 Online Service Completion Score (0 to 100)	**89** ↓ 2017	11	90 2016	9	84 2017
5a4 Digital Public Services for Businesses Score (0 to 100) - including domestic and cross-border	**92** ↓ 2017	9	99 2016	2	83 2017
5a5 Open Data % of maximum score	**65%** ↑ 2017	21	44% 2016	22	73% 2017
5b1 eHealth Services % individuals	**33%** 2017	4	NA		18%

Implementation and uptake of digital public services is high in Sweden. 90 % of internet users needing to submit administrative forms do so online. Data that are already known to the public administrations are frequently pre-filled in on forms in Sweden – for example when submitting tax declarations. When it comes to interaction with public administrations for life-events, many steps can be performed completely online.

Sweden wants to speed up the digitisation of the public sector and announced several actions in the 2018 budget amounting to EUR 20 million for the next 3 years, such as setting up a new agency[23] for digitisation of the public administration in September 2018. The agency will develop, coordinate and support the digitisation of state authorities, municipalities and county councils and develop national digital infrastructure such as data management standards, eID and digital post. It will also promote open data and data-driven innovation – an area where Sweden's performance is relatively weak. In 2017 some laws were adjusted to the digital world, for example to allow the automatization of certain decisions.

When it comes to eHealth services, a third of citizens use online health services, for example to book a consultation online. 99 % of all prescriptions in Sweden are electronic[24]. The

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[22] 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.
[23] Ny myndighet för digitalisering av den offentliga sektorn till Sundsvall

[24] Swedish eHealth agency

eHealth Agency implements the 2017-2019 eHealth action plan[25]. The largest initiative is to set up a national online list of prescribed medicines that can be consulted by the patient, the healthcare provider and pharmacists to see which drugs have been prescribed for a patient, regardless of who has prescribed them.

The Agency also works on rules and regulations, definitions and standards for more efficient and secure health care. A challenge related to the exchange of patient information is that health care is decentralised.

The Swedish cybersecurity strategy[26] was adopted in June 2017 setting out six priorities: securing a systematic approach in cybersecurity efforts; enhancing network, product and system security; improving the capability to prevent, detect and manage cyberattacks and other IT incidents; increasing the possibility to prevent and combat cybercrime; increasing knowledge about vulnerabilities and needs; and enhancing international cooperation. In 2017 the government also introduced IT incident reporting for all government agencies.

Digital public services are well developed in Sweden on both the demand and supply sides. A challenge to further development and uptake is the decentralised public administration. Moreover, Sweden continues to lag behind when it comes to open data.

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[25] Sweden's eHealth action plan
[26] Swedish cybersecurity strategy