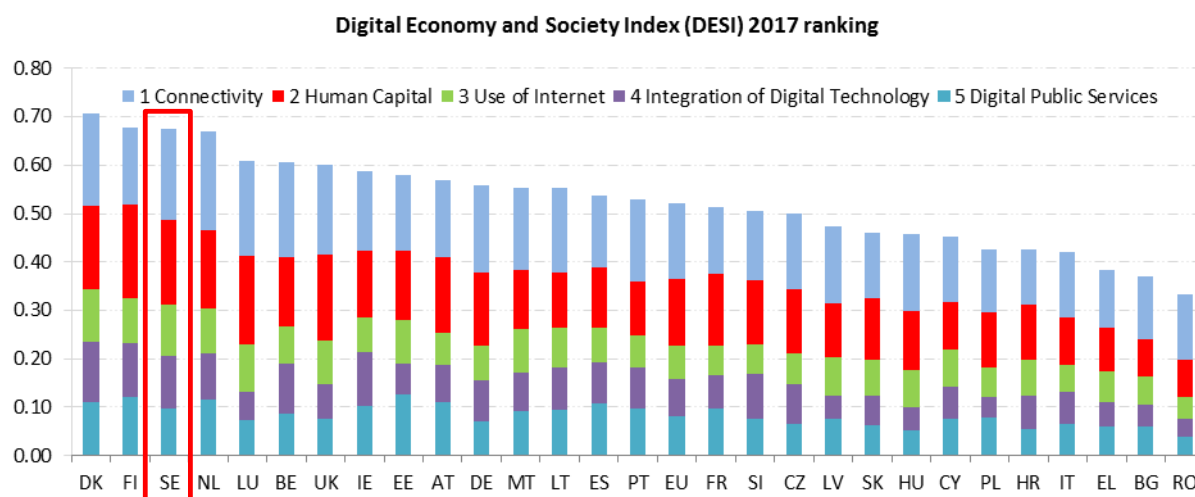


# Europe's Digital Progress Report (EDPR)

## 2017 Country Profile Sweden

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)<sup>1</sup> with qualitative information on country-specific policies. It is structured around five chapters:

|                                            |                                                                 |
|--------------------------------------------|-----------------------------------------------------------------|
| <b>1 Connectivity</b>                      | Fixed broadband, mobile broadband, broadband speed and prices   |
| <b>2 Human Capital</b>                     | Internet use, basic and advanced digital skills                 |
| <b>3 Use of Internet</b>                   | Citizens' use of content, communication and online transactions |
| <b>4 Integration of Digital Technology</b> | Business digitisation and eCommerce                             |
| <b>5 Digital Public Services</b>           | eGovernment                                                     |



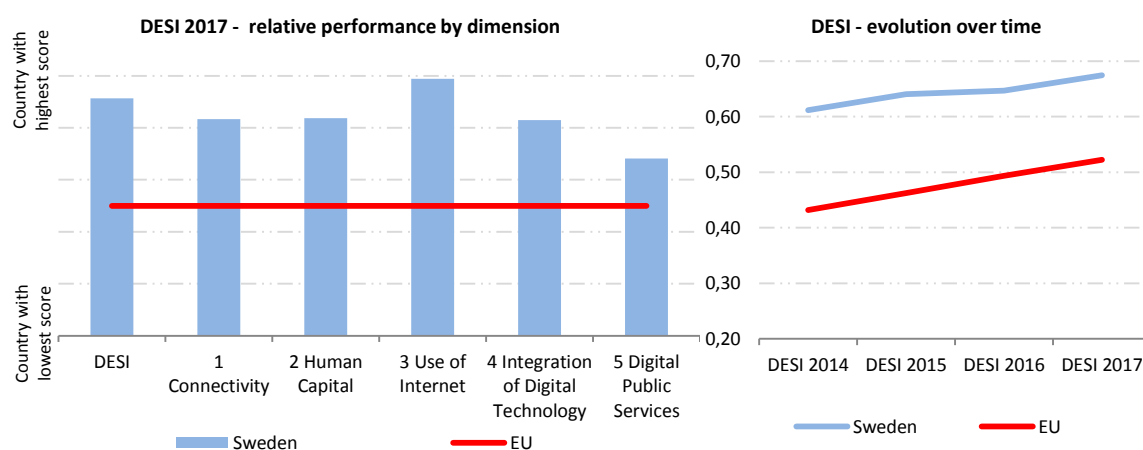
<sup>1</sup> <https://ec.europa.eu/digital-single-market/en/desi>

|                        | Sweden   |             | Cluster     | EU          |
|------------------------|----------|-------------|-------------|-------------|
|                        | rank     | score       | score       | score       |
| <b>DESI 2017</b>       | <b>3</b> | <b>0.67</b> | <b>0.63</b> | <b>0.52</b> |
| DESI 2016 <sup>2</sup> | 3        | 0.65        | 0.60        | 0.49        |

Sweden continues to rank 3rd out of the 28 EU Member States. Overall progress is in line with the EU average. In terms of connectivity Sweden scores well above the EU average. 4G coverage is 100% and fixed broadband is available to 99% of households, with a 72% take-up. In 2016 more Swedes used the internet to read news, listen to music, watch films and TV programmes, make calls as well as use social media. Sweden ranks 4th on human capital, having the second highest number of ICT specialists, but as in most EU countries demand exceeds supply. With regard to digitisation of business and ecommerce activities, Sweden ranks 4<sup>th</sup> out of the EU countries. A quarter of Swedish small and medium enterprises (SMEs) sell online with 10% selling cross-border. Cloud facilities and eInvoices are used by a third of all enterprises. Digital public services are the country's biggest relative weakness (8<sup>th</sup>).

Sweden belongs to the high performance country cluster<sup>3</sup>

The current digital agenda<sup>4</sup> dates back from 2011, but the Digitisation Commission<sup>5</sup> has identified strategic areas which should be addressed in a forthcoming digitisation strategy: rules and regulation fit for the digital age, digital skills, data driven innovation, importance of access to fixed and mobile broadband and infrastructure and the importance of national leadership. It is expected that Sweden adopts this digitisation strategy in 2017.



<sup>2</sup> 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 [http://ec.europa.eu/information\\_society/newsroom/cf/dae/document.cfm?action=display&doc\\_id=8846](http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?action=display&doc_id=8846).

<sup>3</sup> High performing countries are Denmark, Finland, Sweden, the Netherlands, Luxembourg, Belgium, the UK, Ireland and Estonia.

<sup>4</sup> [ICT for everyone – A digital agenda for Sweden](#)

<sup>5</sup> [Digitaliseringskommissionens slutrapport 2016](#)

# 1 Connectivity

| 1 Connectivity | Sweden |       | Cluster | EU    |
|----------------|--------|-------|---------|-------|
|                | rank   | score | score   | score |
| DESI 2017      | 5      | 0.76  | 0.75    | 0.63  |
| DESI 2016      | 5      | 0.72  | 0.73    | 0.59  |

|                                                                           | Sweden                               |      |                                    |      | EU                                 |
|---------------------------------------------------------------------------|--------------------------------------|------|------------------------------------|------|------------------------------------|
|                                                                           | DESI 2017                            |      | DESI 2016                          |      | DESI 2017                          |
|                                                                           | value                                | rank | value                              | rank | value                              |
| <b>1a1 Fixed Broadband Coverage</b><br>% households                       | 99% →<br>2016                        | 14   | 99%<br>2015                        | 13   | 98%<br>2016                        |
| <b>1a2 Fixed Broadband Take-up</b><br>% households                        | 72% ↑<br>2016                        | 14   | 68%<br>2015                        | 17   | 74%<br>2016                        |
| <b>1b1 Mobile Broadband Take-up</b><br>Subscriptions per 100 people       | 120 ↑<br>June 2016                   | 3    | 115<br>June 2015                   | 2    | 84<br>June 2016                    |
| <b>1b2 4G coverage<sup>6</sup></b><br>% households (average of operators) | 100%<br>2016                         | 1    | NA                                 |      | 84%<br>2016                        |
| <b>1b3 Spectrum<sup>7</sup></b><br>% of the target                        | 88% ↓<br>2016                        | 4    | 92%<br>2015                        | 3    | 68%<br>2016                        |
| <b>1c1 NGA Coverage</b><br>% households                                   | 79% ↑<br>2016                        | 17   | 76%<br>2015                        | 18   | 76%<br>2016                        |
| <b>1c2 Subscriptions to Fast Broadband</b><br>% subscriptions >= 30Mbps   | 63% ↑<br>June 2016                   | 5    | 57%<br>June 2015                   | 6    | 37%<br>June 2016                   |
| <b>1d1 Fixed Broadband Price<sup>8</sup></b><br>% income                  | 0.6% ↑<br>price 2016,<br>income 2015 | 1    | 0.8%<br>price 2015,<br>income 2015 | 3    | 1.2%<br>price 2016,<br>income 2015 |

Sweden ranks 5<sup>th</sup> in connectivity among the EU member States and scores well above EU average (with a score of 0.76 against 0.63 for the EU). With fixed broadband available to 99% of homes, there is a strong foundation for the digitisation of society. Take up of fixed broadband has increased over the past year from 68% in 2015 to 72% in 2016. The share of high speed connections (providing at least 30 Mbps) is significantly higher than the EU average (63% compared with 37% across the EU) and has increased since last year, when it stood at 57%.

Sweden's 2009 broadband strategy<sup>9</sup> had the overarching goal that Sweden should have world-class broadband. The long term objective was to achieve 90% coverage of households and businesses with 100 Mbps by 2020. In the framework of this strategy, state aid for deployment of broadband infrastructure with very high speed has been made available

<sup>6</sup> This is a new DESI indicator measuring the average coverage of telecom operators' 4G networks.

<sup>7</sup> There is a decrease in most of the Member States due to the additional EU harmonisation of the 700 MHz band in April 2016.

<sup>8</sup> Due to a slight methodological change, historical data was re-calculated.

<sup>9</sup> <http://www.regeringen.se/rapporter/2009/11/n20098317itp/> (Swedish)

through two EU-funds: the Rural Development Programme and in the northern part of Sweden also through the European Regional Development Fund. This broadband strategy was efficiently implemented and led to the adoption of a new broadband strategy presented in December 2016.

Sweden's new broadband strategy (December 2016) aims at having a completely connected country by 2025 and has the following three objectives: on the one hand, 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, on the other hand, by 2023, the whole country should have access to stable mobile services of good quality, and finally by 2025, the whole country should have access to high speed broadband. This new broadband strategy aims notably at meeting rapidly growing consumer demand for high speed broadband.

Sweden is a front runner when it comes to connectivity in the EU. One of the challenges still to be addressed is to achieve connectivity coverage in more remote areas given the geography dynamics of the country.

#### **Highlight 2017:<sup>10</sup> The Swedish Broadband Forum**

The [Swedish Broadband Forum](#) is an arena for dialogue and collaboration between the government, public authorities and organisations, business and other actors that operate in the broadband market. The work is characterised by consensus seeking solutions. The Forum was set up in 2010 as part of the government's broadband strategy to promote deployment of broadband throughout Sweden.

The Minister for Digital development heads the Forum's steering board, whose members are appointed by the government. To keep a clear focus the steering board identifies prioritised operational or other material issues and sets up working groups. Each working group will focus on one particular issue and work within a specific time frame.

An administrative office supports the work of the Broadband Forum. It is an autonomous unit based at the Swedish Post and Telecom Agency (PTS) and it reports to the Ministry of Enterprise and Innovation.

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<sup>10</sup> Highlight 2016: The home PC reform – computers for everyone! In 1998 a tax reform was implemented so that the cost of a computer provided by an employer to its employees, could be deducted from wages, so not subject to income tax, but treated as an employment benefit. In effect, this reduced the cost of a computer by about 30-50% for citizens. The trade unions also had an offer their members the possibility to rent a computer at a favourable price. These initiatives stressed the importance of raising the level of digital skills among all citizens, and aimed at making Sweden one of the leading digital nations in the world. There is no doubt these had a positive effect, although the exact level of impact is difficult to measure and has been somewhat debated. The initiative terminated after about 10 years when Sweden had reached high levels of home access to computers.

## 2 Human Capital

| 2 Human Capital | Sweden |       | Cluster | EU    |
|-----------------|--------|-------|---------|-------|
|                 | rank   | score | score   | score |
| DESI 2017       | 4      | 0.69  | 0.68    | 0.55  |
| DESI 2016       | 4      | 0.68  | 0.66    | 0.53  |

|                                                                   | Sweden                                                                                 |      |                                                                                          |      | EU                                                                                       |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------|
|                                                                   | DESI 2017                                                                              |      | DESI 2016                                                                                |      | DESI 2017                                                                                |
|                                                                   | value                                                                                  | rank | value                                                                                    | rank | value                                                                                    |
| <b>2a1 Internet Users</b><br>% individuals                        | 91%   | 6    | 89%   | 6    | 79%   |
|                                                                   | 2016                                                                                   |      | 2015                                                                                     |      | 2016                                                                                     |
| <b>2a2 At Least Basic Digital Skills</b><br>% individuals         | 69%   | 6    | 72%   | 5    | 56%   |
|                                                                   | 2016                                                                                   |      | 2015                                                                                     |      | 2016                                                                                     |
| <b>2b1 ICT Specialists<sup>11</sup></b><br>% employed individuals | 6.1%  | 2    | 5.8%  | 2    | 3.5%  |
|                                                                   | 2015                                                                                   |      | 2014                                                                                     |      | 2015                                                                                     |
| <b>2b2 STEM Graduates</b><br>Per 1000 individuals (aged 20-29)    | 15    | 20   | 15    | 20   | 19    |
|                                                                   | 2014                                                                                   |      | 2013                                                                                     |      | 2014                                                                                     |

In the human capital dimension Sweden performs well, but has had lower growth than the EU average since 2014. 91% of 16 to 74 year olds use the internet at least once a week. 69% have at least basic digital skills<sup>12</sup>, which allow them to participate in and take advantage of digital society. Sweden has the second highest number of ICT specialists – after Finland – but as in most European countries demand exceeds supply. Sweden ranks only 20th when it comes to graduates in science and technology and companies report difficulties in recruiting ICT-specialists. The number of graduates has been declining since 2015.

In 2016 a report<sup>13</sup> by the Swedish National Agency for Education (NAE) (Skolverket) shows that more computers and tablets are being used in schools and that usage is increasing in all school subjects. However, students do not feel their digital skills have improved enough. There is also a great need for training in digitisation at all levels within the school. In 2016 the NAE launched online teacher training modules<sup>14</sup> for the integration of digital in education.

In 2016 the NAE also presented strategies for digitisation of compulsory<sup>15</sup>, upper secondary and adult education<sup>16</sup> to allow all students to have a more equal opportunity to develop digital literacy. This includes changes to curricula and exam objectives<sup>17</sup>.

<sup>11</sup> Historical data have been revised by Eurostat.

<sup>12</sup> [Basic digital skills](#) measures whether people have at least basic skills in at least one of four digital competence domains: information, communication, content-creation or problem-solving.

<sup>13</sup> IT-användninga och IT-kompetens i skolan

<sup>14</sup> [Online teacher training modules](#) for integration of digital.

<sup>15</sup> [Nationell it-strategi för skola och förskola](#)

<sup>16</sup> [Nationell it-strategi för gymnasieskola och vuxenutbildning](#)

<sup>17</sup> [Uppdrag om nationella styrdokument i skolväsendet](#) och [förskola](#)

In March 2017 the government adopted a decision to harness the potential of digitisation for compulsory and upper secondary education. The decision includes changes to the curricula e.g. including coding as a distinct feature in more subjects, but especially in maths and engineering, in primary school<sup>18</sup>.

To encourage use of ICT at home the government introduced tax reductions for the installation of digital equipment in private homes, including technical support and user instruction in 2016.

One of the persistent challenges for Sweden is to address the lack of ICT professionals more actively. The Swedish tech community signals a need for people with skills in "deep tech", for example people with skills in cloud and artificial intelligence. The forthcoming strategy for the digitisation of the education system should help close the digital skills gap in the long run. A national digital skills and jobs coalition could facilitate the building of synergies between different stakeholders for the design and implementation of strategies addressing the shortage of digitally skilled people.

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<sup>18</sup> <http://www.regeringen.se/pressmeddelanden/2017/03/starkt-digital-kompetens-i-laroplaner-och-kursplaner/>

### 3 Use of Internet

| 3 Use of Internet | Sweden |       | Cluster | EU    |
|-------------------|--------|-------|---------|-------|
|                   | rank   | score | score   | score |
| DESI 2017         | 2      | 0.71  | 0.60    | 0.48  |
| DESI 2016         | 1      | 0.66  | 0.57    | 0.45  |

|                                                                                                         | Sweden      |        |             |      | EU          |
|---------------------------------------------------------------------------------------------------------|-------------|--------|-------------|------|-------------|
|                                                                                                         | DESI 2017   |        | DESI 2016   |      | DESI 2017   |
|                                                                                                         | value       | rank   | value       | rank | value       |
| <b>3a1 News</b><br>% individuals who used Internet in the last 3 months                                 | 87%<br>2016 | ↑<br>6 | 83%<br>2015 | 10   | 70%<br>2016 |
| <b>3a2 Music, Videos and Games<sup>19</sup></b><br>% individuals who used Internet in the last 3 months | 91%<br>2016 | 1      | NA          |      | 78%<br>2016 |
| <b>3a3 Video on Demand<sup>20</sup></b><br>% individuals who used Internet in the last 3 months         | 49%<br>2016 | 2      | NA          |      | 21%<br>2016 |
| <b>3b1 Video Calls</b><br>% individuals who used Internet in the last 3 months                          | 51%<br>2016 | ↑<br>8 | 43%<br>2015 | 12   | 39%<br>2016 |
| <b>3b2 Social Networks</b><br>% individuals who used Internet in the last 3 months                      | 75%<br>2016 | ↑<br>7 | 69%<br>2015 | 12   | 63%<br>2016 |
| <b>3c1 Banking</b><br>% individuals who used Internet in the last 3 months                              | 89%<br>2016 | ↑<br>5 | 88%<br>2015 | 5    | 59%<br>2016 |
| <b>3c2 Shopping</b><br>% internet users (last year)                                                     | 80%<br>2016 | ↑<br>5 | 78%<br>2015 | 5    | 66%<br>2016 |

In the use of internet, Sweden performs second best in the EU, after Denmark, with higher growth than the EU average. Despite slipping down a place from the previous year, Sweden progressed in all categories.

In 2016 more Swedish internet users used the web than 2015. More Swedes read news (87%), made video calls (51%) and were active on social networks (75%) on the internet than the year before. 91% of internet users – highest among all EU countries – listened to music, watched videos, played games and 49% watch video-on-demand. In 2016 89% carried out banking services online. A large majority of Swedish internet users (80%) shopped online, but only 33% made purchases across borders from other countries, still a relative high percentage compared with other European countries.

<sup>19</sup> Break in series due to a change in the Eurostat survey.

<sup>20</sup> Break in series due to a change of data source. New source is Eurostat.

## 4 Integration of Digital Technology

| 4 Integration of Digital Technology | Sweden |       | Cluster | EU    |
|-------------------------------------|--------|-------|---------|-------|
|                                     | rank   | score | score   | score |
| DESI 2017                           | 4      | 0.54  | 0.44    | 0.37  |
| DESI 2016                           | 3      | 0.51  | 0.41    | 0.35  |

|                                                            | Sweden             |      |                    |      | EU                 |
|------------------------------------------------------------|--------------------|------|--------------------|------|--------------------|
|                                                            | DESI 2017<br>value | rank | DESI 2016<br>value | rank | DESI 2017<br>value |
| <b>4a1 Electronic Information Sharing</b><br>% enterprises | NA<br>2015         |      | NA<br>2015         |      | 36%<br>2015        |
| <b>4a2 RFID</b><br>% enterprises                           | 2.7%<br>2014       | 23   | 2.7%<br>2014       | 23   | 3.9%<br>2014       |
| <b>4a3 Social Media</b><br>% enterprises                   | 24% ↑<br>2016      | 9    | 21%<br>2015        | 6    | 20%<br>2016        |
| <b>4a4 eInvoices</b><br>% enterprises                      | 33%<br>2016        | 4    | NA<br>2015         |      | 18%<br>2016        |
| <b>4a5 Cloud</b><br>% enterprises                          | 33%<br>2016        | 2    | NA<br>2015         |      | 13%<br>2016        |
| <b>4b1 SMEs Selling Online</b><br>% SMEs                   | 26% →<br>2016      | 3    | 26%<br>2015        | 2    | 17%<br>2016        |
| <b>4b2 eCommerce Turnover</b><br>% SME turnover            | 14.7% ↑<br>2016    | 5    | 13.5%<br>2015      | 4    | 9.4%<br>2016       |
| <b>4b3 Selling Online Cross-border</b><br>% SMEs           | 9.7%<br>2015       | 10   | 9.7%<br>2015       | 10   | 7.5%<br>2015       |

Sweden ranks 4th among EU countries for business digitisation and eCommerce activities, after Denmark, Ireland and Finland. Swedish businesses are using digital technologies to improve their efficiency and productivity, as well as to reach customers and improve sales. They are more and more adopting cloud computing, using electronic invoicing and social media to communicate with their customers and their turnover from selling online is increasing. However, compared with Finland (72%) and Denmark (64%) eInvoicing is only used by 33% of enterprises. Finnish companies (40%) also use cloud services more than Swedish ones (33%).

Sweden is one of the most competitive economies<sup>21</sup> in the world with a strong business environment and a thriving startup community. In its Smart industry strategy<sup>22</sup>, the Swedish government recognises that the rate of digital transformation has made it difficult for smaller companies to keep up with technological development. The strategy, which was adopted in April 2016, focuses on four areas: to boost initiatives that support "early adopter" firms, while at the same time making digitisation and innovation easier for those lagging behind; to tackle

<sup>21</sup> Sweden ranks sixth in the World Economic Forum's global competitiveness index after Switzerland, Singapore, US, Netherlands and Germany

<sup>22</sup> [Smart industry - a strategy for new industrialisation for Sweden](#)

the shortage of skilled labour; sustainable production; and to lead research that contributes to strengthening industrial production.

In 2016 the government launched a programme<sup>23</sup> to drive innovation in Sweden by supporting collaboration between industry, startups, government and academia on emerging topics identified by the stakeholders themselves.

The government also extended a pilot project, Digilyftet<sup>24</sup>, into a three-year initiative with the aim of getting more industrial and industry-related service companies interested in using digital technologies. The companies which take part in Digilyftet learn about the challenges and opportunities of digitisation and get coaching to implement digitisation projects in their company.

To enhance the dialogue between the startup community and the political sphere, a Startup Director was established in 2016. Last year the government also launched Saminvest<sup>25</sup> – a company for venture capital investment – owned by the Swedish state. Saminvest will work as a catalyst between private venture capital and innovative SMEs with high growth potential.

Sweden took some major steps to improve digitisation among business. However, boosting ICT uptake by SMEs remains a challenge.

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<sup>23</sup> [Samverkansprogram](#)

<sup>24</sup> [Digilyftet](#)

<sup>25</sup> [Saminvest AB](#)

## 5 Digital Public Services

| 5 Digital Public Services | Sweden |       | Cluster | EU    |
|---------------------------|--------|-------|---------|-------|
|                           | rank   | score | score   | score |
| DESI 2017                 | 8      | 0.65  | 0.59    | 0.55  |
| DESI 2016                 | 8      | 0.64  | 0.57    | 0.51  |

|                                                              | Sweden                                                                                |      |                                                                                         |      | EU                                                                                      |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------|
|                                                              | DESI 2017                                                                             |      | DESI 2016                                                                               |      | DESI 2017                                                                               |
|                                                              | value                                                                                 | rank | value                                                                                   | rank | value                                                                                   |
| <b>5a1 eGovernment Users</b><br>% internet users (last year) | 50%  | 7    | 49%  | 6    | 34%  |
|                                                              | 2016                                                                                  |      | 2015                                                                                    |      | 2016                                                                                    |
| <b>5a2 Pre-filled Forms</b><br>Score (0 to 100)              | 71   | 8    | 75   | 7    | 49   |
|                                                              | 2016                                                                                  |      | 2015                                                                                    |      | 2016                                                                                    |
| <b>5a3 Online Service Completion</b><br>Score (0 to 100)     | 90   | 9    | 89   | 10   | 82   |
|                                                              | 2016                                                                                  |      | 2015                                                                                    |      | 2016                                                                                    |
| <b>5a4 Open Data</b> <sup>26</sup><br>% of maximum score     | 44%  | 22   | 40%  | 20   | 59%  |
|                                                              | 2016                                                                                  |      | 2015                                                                                    |      | 2016                                                                                    |

Sweden is performing above the EU average with regard to the implementation and uptake of digital public services. However, digital public services are the DESI dimension where Sweden performs the weakest, stuck at 8<sup>th</sup> place in the EU. The declining figure for pre-filled forms (from 77% in 2014 to 71% in 2016) may reflect the fact that parts of the Swedish administration is ahead of the curve, as Swedes no longer need to fill in and submit online forms. To apply for temporary parental benefits, for example, the user only needs to click on a few buttons in a mobile app.

Since 2016 responsibility for the digitisation of the public sector has shifted to the Ministry of Finance; this shift may accelerate the modernisation of the public sector. In February 2017 the government outlined its vision to create one digital public administration. The focus lies on five areas: *infrastructure* – implementation and promotion of common digital services; *digital literacy* – increasing digital skills and effective use of ICT; *innovation* – promoting the use of open data; *legal digital first* – removing barriers to improve cooperation and digitisation among public administrations; and creating *an agency* with the overall responsibility for digital government.

To speed up the digitisation of health care in Sweden, the government, together with the Swedish Association of Local Authorities and Regions (SKL) unveiled its 2017-2019 eHealth action plan<sup>27</sup> in February 2017. Standards and monitoring systems related to eHealth will be developed. The objective is also to improve the cooperation between the central government, counties, regions and municipalities.

<sup>26</sup> Change of data source. The historical data have also been restated. The new source is the European Data Portal.

<sup>27</sup> [Sweden's eHealth action plan](#)

Open data is Sweden's only weakness: the country ranks 22nd in the EU. An open data portal<sup>28</sup> was launched in 2013. However, not all data is free of charge or openly licensed and only one fourth is machine readable. Furthermore, the country lacks an open data strategy. However, in 2016, the Swedish National Archives were assigned<sup>29</sup> to champion open data development within the state administration and to stimulate other agencies to publish open data according to common guidelines. The government also sponsors collaboration between agencies and municipalities called "Hack4Sweden," where entrepreneurs and creators compete by creating solutions based on open data.

Overall Sweden is doing well in many of the diverse aspects of eGovernment. A challenge to go further is the decentralised public administration system with independent government agencies, regions and municipalities. Given the country's leading position in the digital economy and society, a further improvement of digital public services could act as a driver for raising technology adoption among companies and citizens.

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<sup>28</sup> <http://opnadata.se>

<sup>29</sup> [http://www.esamverka.se/download/18.661748141551692c5be6cd21/1467355936344/uppdrag-till-Riksarkivet\\_16juni2016.pdf](http://www.esamverka.se/download/18.661748141551692c5be6cd21/1467355936344/uppdrag-till-Riksarkivet_16juni2016.pdf)