

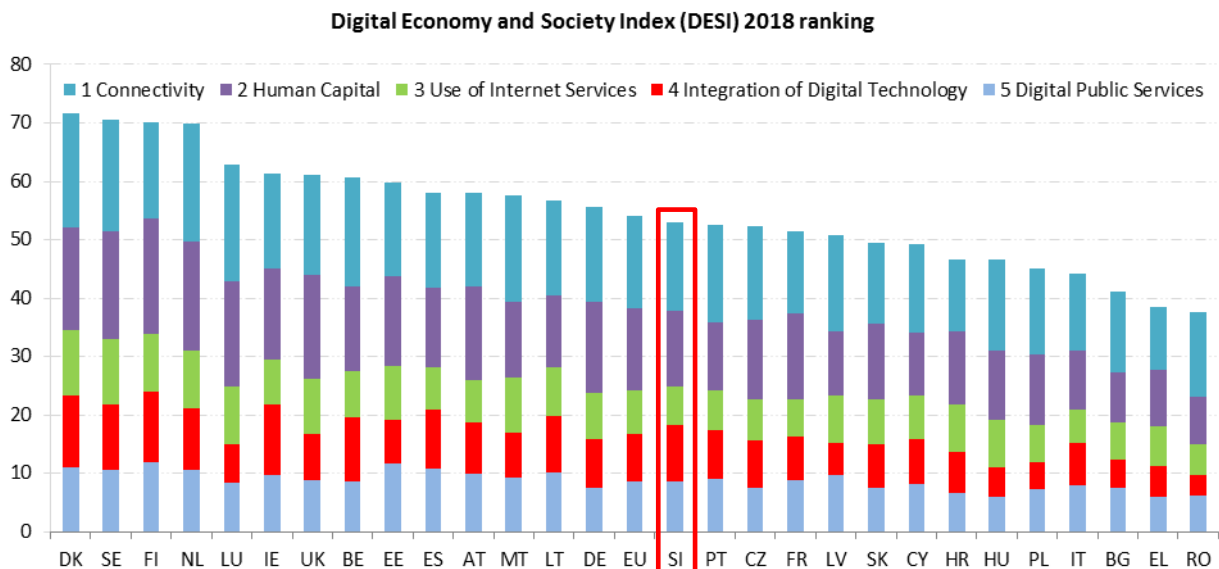
# Digital Economy and Society Index (DESI)<sup>1</sup> 2018

## Country Report Slovenia

The DESI report tracks the progress made by Member States in terms of their digitisation. 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 Services</b>          | Citizens' use of content, communication and online transactions |
| <b>4 Integration of Digital Technology</b> | Business digitisation and e-commerce                            |
| <b>5 Digital Public Services</b>           | eGovernment   |

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>.



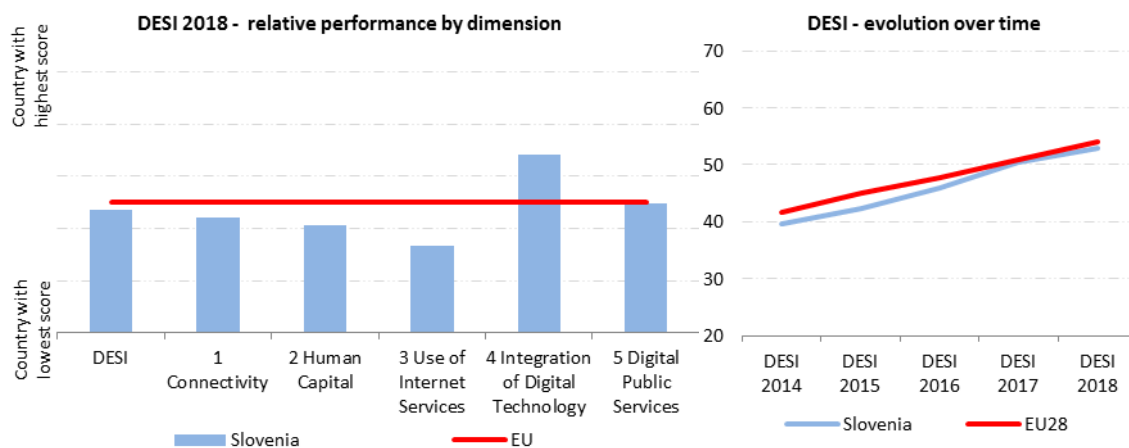
<sup>1</sup> <https://ec.europa.eu/digital-single-market/en/desi>

|                  | Slovenia  |             | Cluster     | EU          |
|------------------|-----------|-------------|-------------|-------------|
|                  | rank      | score       | score       | score       |
| <b>DESI 2018</b> | <b>15</b> | <b>53,0</b> | <b>54,7</b> | <b>54,0</b> |
| DESI 2017        | 16        | 50,4        | 51,5        | 50,8        |

Slovenia ranks 15th out of the 28 EU Member States in the European Commission’s Digital Economy and Society Index (DESI). Slovenia made significant progress in the use of internet services and the delivery of digital public services. Slovenia remains above the EU average in the integration of digital technology. Human capital levels are stable. However, connectivity remains below the EU average, and the roll-out and take-up of fast and mobile broadband is progressing slower than planned. Promoting the use of the internet and digital public services will improve take-up of and demand for digital services. Enhanced efforts to improve connectivity are a necessary precondition for a successful digital transformation in Slovenia.

Slovenia belongs to the medium-performing cluster of countries<sup>2</sup>.

Slovenia is implementing its Digital Agenda Slovenia 2020<sup>3</sup> that was adopted in March 2016 and has in place a National Digital Skills and Jobs Coalition.



<sup>2</sup> Medium-performing countries are Spain, Austria, Malta, Lithuania, Germany, Slovenia, Portugal, Czech Republic, France and Latvia.

<sup>3</sup> [DIGITALNA SLOVENIJA 2020 Strategija razvoja informacijske družbe do leta 2020](#)

# 1 Connectivity

| 1 Connectivity | Slovenia |       | Cluster | EU    |
|----------------|----------|-------|---------|-------|
|                | rank     | score | score   | score |
| DESI 2018      | 20       | 60,3  | 62,4    | 62,6  |
| DESI 2017      | 19       | 56,9  | 58,8    | 58,5  |

|  | Slovenia         |      |               |      | EU             |
|--|------------------|------|---------------|------|----------------|
|  | DESI 2018        |      | DESI 2017     |      | DESI 2018      |
|  | value            | rank | value         | rank | value          |
| <b>1a1 Fixed Broadband Coverage</b><br>% households  | 98 % →<br>2017   | 16   | 98 %<br>2016  | 15   | 97 %<br>2017   |
| <b>1a2 Fixed Broadband Take-up</b><br>% households   | 77 % →<br>2017   | 11   | 77 %<br>2016  | 9    | 75 %<br>2017   |
| <b>1b1 4G Coverage</b><br>% households (average of operators)                                | 96 % ↑<br>2017   | 13   | 90 %<br>2016  | 17   | 91 %<br>2017   |
| <b>1b2 Mobile Broadband Take-up</b><br>Subscriptions per 100 people                          | 66 ↑<br>2017     | 25   | 54<br>2016    | 26   | 90<br>2017     |
| <b>1c1 Fast Broadband (NGA) Coverage</b><br>% households covered by VDSL, FTTP or Docsis 3.0 | 83 % ↑<br>2017   | 16   | 82 %<br>2016  | 13   | 80 %<br>2017   |
| <b>1c2 Fast Broadband Take-up</b><br>% homes subscribing to >= 30Mbps                        | 24 % ↑<br>2017   | 21   | 19 %<br>2016  | 22   | 33 %<br>2017   |
| <b>1d1 Ultra-fast Broadband Coverage</b><br>% households covered by FTTP or Docsis 3.0       | 75 %<br>2017     | 11   | NA            |      | 58 %<br>2017   |
| <b>1d2 Ultrafast Broadband Take-up</b><br>% homes subscribing to >= 100Mbps                  | 13,4 % ↑<br>2017 | 16   | 9,4 %<br>2016 | 16   | 15,4 %<br>2017 |
| <b>1e1 Broadband Price Index</b><br>Score (0 to 100)   | 73 ↓<br>2017     | 23   | 75<br>2016    | 21   | 87<br>2017     |

Slovenia is progressing in terms of connectivity both on the fixed and mobile segments, but its overall ranking in the connectivity category remains unchanged. Bundled offers, mostly triple-play offers, keep playing a significant role in communications packages, at the expense of mobile operators without good fixed network coverage.

Almost everyone in Slovenia has broadband internet coverage and the country is making progress in fast broadband coverage (98 % and 83 % respectively). At 77 %, fixed broadband internet take-up remains close to the EU average (75 %). In 2016, Slovenia set itself the goal of ensuring 96 % of its population has internet speed of at least 100 Mbps and the remaining 4 % with speeds of at least 30 Mbps by 2020, which is a more ambitious goal than in the Digital Agenda for Europe. In order to achieve these targets, more investments in fixed line connectivity are needed, in particular in rural areas. In this context, Slovenia has launched a public call to invest public funds in the connectivity with fibre access networks in rural areas where there is no commercial interest. Slovenia is currently slightly above the EU coverage average, however, because of ambitious goals set for implementation in national digital agenda there is relatively slow implementation of planned investments. Slovenia might therefore miss the key target under the Digital Agenda for Europe to ensure that the entire population has access to internet with speeds of at least 30 Mbps. Furthermore, relatively

high prices for broadband connectivity (broadband price index 73) might be the reason for low take-up of fast broadband with speeds of 30 Mbps and above. Previous investments in fibre access networks mean that Slovenia is scoring well in ultra-fast broadband coverage (74 %), while take-up of ultra-fast broadband remains close to the EU average (13 %).

Timely regulatory reviews are important for a stable regulatory environment responsive to new developments. Persisting delays in market analysis of the wholesale broadband market for business connectivity prompted the Commission to open infringement proceedings in October 2017. Since then, the national regulatory authority AKOS has completed its analysis of that market.

The 700 MHz auction for 5G is planned for 2018. Moreover, the Ministry of Public Administration has, together with AKOS, launched the initiative for first pilot tests and the future use of 5G technology in Slovenian cities. In terms of competitiveness, the Slovene market remains very dynamic due to the fact that four converged players are offering 3- or 4-play services. Moreover, the government is preparing a number of demand-side initiatives to boost connectivity, such as wireless networks for local communities.

## 2 Human Capital

| 2 Human Capital | Slovenia |       | Cluster | EU    |
|-----------------|----------|-------|---------|-------|
|                 | rank     | score | score   | score |
| DESI 2018       | 15       | 52,0  | 58,6    | 56,5  |
| DESI 2017       | 14       | 52,4  | 56,5    | 54,6  |

|  | Slovenia                                 |      |  |      | EU        |
|--|--|------|--|------|-----------|
|  | DESI 2018                                |      | DESI 2017                                |      | DESI 2018 |
|  | value                                    | rank | value                                    | rank | value     |
| <b>2a1 Internet Users</b><br>% individuals                                 | 77% <span style="color: green;">↑</span> | 19   | 73% <span style="color: green;">↑</span> | 20   | 81%       |
|  | 2017                                     |      | 2016                                     |      | 2017      |
| <b>2a2 At Least Basic Digital Skills</b><br>% individuals                  | 54% <span style="color: green;">↑</span> | 18   | 53% <span style="color: green;">↑</span> | 16   | 57%       |
|  | 2017                                     |      | 2016                                     |      | 2017      |
| <b>2b1 ICT Specialists</b><br>% total employment                           | 3,5% <span style="color: red;">↓</span>  | 15   | 3,6% <span style="color: red;">↓</span>  | 13   | 3,7%      |
|  | 2016                                     |      | 2015                                     |      | 2016      |
| <b>2b2 STEM Graduates<sup>4</sup></b><br>Per 1000 individuals (aged 20-29) | 17,2 <span style="color: red;">↓</span>  | 14   | 19,8 <span style="color: red;">↓</span>  | 10   | 19,1      |
|  | 2015                                     |      | 2014                                     |      | 2015      |

In the Human Capital dimension, Slovenia did not progress in 2017, and the gap with the EU average widened in the last year. Despite numbers of regular internet users rising from 73 % to 77 % Slovenia still has a slightly lower percentage of regular internet users compared to the EU average (81 %). However, 68 % of 14-74 year olds use the internet daily<sup>5</sup>. Despite a slightly decreasing share of STEM (science, technology, engineering and mathematics) graduates, it remains close to the EU average. However, companies cannot find enough digitally skilled labour<sup>6</sup>.

Younger generations benefit from digital content and digital skills being included in the formal education curricula from elementary school to university level. Additionally, coding is being included in the school curricula of several schools. However, there are significant differences depending on age groups, education levels and income. The Slovenian Digital Coalition (digitalna.si) which brings together stakeholders from business, research, NGOs, local communities, the public sector and government aims to address the existing gaps in digital awareness and digital skills on the labour market by providing life long-learning actions targeting parts of the population not covered by the formal education process (+45 years old, lower education and rural population). A network of about 400 not-for-profit info-points for life-long learning exists throughout the country. Non-governmental organisations also carry out initiatives to increase trust in the use of internet.

All citizens should be able to reap the benefits of the digital transformation. Addressing the rising demand for digital skills remains crucial for supporting the digital economy. Enhancing digital skills outside the school curriculum would further boost the digital transformation.

<sup>4</sup> 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.

<sup>5</sup> <http://www.stat.si/StatWeb/pregled-podrocja?idp=2989&headerbar=8>

<sup>6</sup> <http://www.delo.si/gospodarstvo/kariera/ze-vsako-tretje-podjetje-ne-dobi-ustreznih-delavcev.html>

### 3 Use of Internet Services

| 3 Use of Internet Services | Slovenia |       | Cluster | EU    |
|----------------------------|----------|-------|---------|-------|
|                            | rank     | score | score   | score |
| DESI 2018                  | 23       | 44,9  | 48,3    | 50,5  |
| DESI 2017                  | 23       | 41,4  | 45,0    | 47,5  |

|  | Slovenia        |      |                 |      | EU              |
|--|-----------------|------|-----------------|------|-----------------|
|  | DESI 2018 value | rank | DESI 2017 value | rank | DESI 2018 value |
| <b>3a1 News</b><br>% individuals who used Internet in the last 3 months                    | 77%<br>2017     | ↓ 19 | 80%<br>2016     | 12   | 72%<br>2017     |
| <b>3a2 Music, Videos and Games</b><br>% individuals who used Internet in the last 3 months | 78%<br>2016     | 16   | 78%<br>2016     | 16   | 78%<br>2016     |
| <b>3a3 Video on Demand</b><br>% individuals who used Internet in the last 3 months         | 18%<br>2016     | 12   | 18%<br>2016     | 12   | 21%<br>2016     |
| <b>3b1 Video Calls</b><br>% individuals who used Internet in the last 3 months             | 47%<br>2017     | ↑ 18 | 42%<br>2016     | 18   | 46%<br>2017     |
| <b>3b2 Social Networks</b><br>% individuals who used Internet in the last 3 months         | 57%<br>2017     | ↑ 25 | 51%<br>2016     | 27   | 65%<br>2017     |
| <b>3c1 Banking</b><br>% individuals who used Internet in the last 3 months                 | 50%<br>2017     | ↑ 21 | 47%<br>2016     | 21   | 61%<br>2017     |
| <b>3c2 Shopping</b><br>% individuals who used Internet in the last 12 months               | 57%<br>2017     | ↑ 18 | 53%<br>2016     | 19   | 68%<br>2017     |

Slovenia ranks 23<sup>rd</sup> in terms of the share of individuals using internet services. More Slovenians use the internet than a year ago, but the gap to the EU average has not changed. Slovenian internet user's habits are mixed when compared to the EU average. While Slovenian internet users increasingly engage in online banking (50 %), social networks (57 %) and online shopping (57 %), the country still lags behind the EU average. Slovenians' use of internet for entertainment — music, videos and games – remains unchanged at the EU average. The use of video calls increased 5 percentage points in the last year and is now slightly above the EU average. Slovene residents are eager readers of news online with 77 % of internet users.

## 4 Integration of Digital Technology

| 4 Integration of Digital Technology | Slovenia |       | Cluster | EU    |
|-------------------------------------|----------|-------|---------|-------|
|                                     | rank     | score | score   | score |
| DESI 2018                           | 8        | 47,9  | 42,1    | 40,1  |
| DESI 2017                           | 7        | 46,0  | 38,5    | 36,7  |

|  | Slovenia  |      |           |      | EU        |
|--|-----------|------|-----------|------|-----------|
|  | DESI 2018 |      | DESI 2017 |      | DESI 2018 |
|  | value     | rank | value     | rank | value     |
| <b>4a1 Electronic Information Sharing</b><br>% enterprises | 30% ↓     | 18   | 33% ↓     | 16   | 34%       |
|  | 2017      |      | 2015      |      | 2017      |
| <b>4a2 RFID</b><br>% enterprises                           | 4,8% ↓    | 13   | 4,9% ↓    | 9    | 4,2%      |
|  | 2017      |      | 2014      |      | 2017      |
| <b>4a3 Social Media</b><br>% enterprises                   | 18% ↑     | 15   | 17% ↑     | 16   | 21%       |
|  | 2017      |      | 2016      |      | 2017      |
| <b>4a4 eInvoices</b><br>% enterprises                      | NA        |      | 56,7%     | 3    | NA        |
|  | 2017      |      | 2016      |      | 2017      |
| <b>4a5 Cloud</b><br>% enterprises                          | 13,5% ↓   | 19   | 14,7% ↓   | 10   | NA        |
|  | 2017      |      | 2016      |      | 2017      |
| <b>4b1 SMEs Selling Online</b><br>% SMEs                   | 17,7% ↑   | 11   | 13,1% ↑   | 18   | 17,2%     |
|  | 2017      |      | 2016      |      | 2017      |
| <b>4b2 E-commerce Turnover</b><br>% SME turnover           | NA        |      | NA        |      | 10,3%     |
|  | 2017      |      | 2016      |      | 2017      |
| <b>4b3 Selling Online Cross-border</b><br>% SMEs           | 11,6% ↑   | 6    | 10,5% ↑   | 5    | 8,4%      |
|  | 2017      |      | 2015      |      | 2017      |

On the Integration of Digital Technology by businesses, Slovenia ranks 8<sup>th</sup>, well above the EU average. Slovenia managed to improve its score, despite losing one position in rank compared to last year. Slovenian SMEs are increasingly taking advantage of the possibilities offered by online commerce: 17.7 % of them sell online and 11.6 % sell cross-border. These two indicators improved from last year and show that Slovenia is above the EU average. However, it has regressed in electronic information sharing, use of RFID and cloud services. 4.8 % of Slovenian enterprises use RFID, meaning the country remains above the EU average (4.2 %).

Small and medium sized enterprises (SMEs) in Slovenia seem to be on the right track towards integrating digital solutions rapidly into their production processes, business models and distribution channels, as selling online enables them to reach out to cross-border markets. Selling online remains a challenge in the domestic market, even though an increasing number of Slovenians are buying online from foreign vendors. The use of e-invoices in the public sector, including utility enterprises has been common in Slovenia for several years, as the use of e-invoices is mandatory for the business sector in transactions with the public sector. The public authorities intend to promote the use of web-based services among SMEs by organising Internet of Things roadshows in regional centres and fairs and through the roll-out of broadband and 5G.

Strengthening and accelerating the digitisation of industry is a priority for Slovenia's Digital Strategy and the Digital Coalition. The Ministry for Economy and Technological Development (METD) has launched a call for interest for funding (EUR 8 million) to promote the digitisation of businesses processes in SMEs. It is also funding two projects on SMART specialisation in the digital area (factories of the future and SMART cities). Slovenia has no specific and targeted fiscal breaks for investment in digital.

Awareness of the need to integrate digital technologies into business processes is rising, including through newly established Digital Innovation Hubs. An increasing number of companies have appointed a chief information officer<sup>7</sup>. However, the degree of their actual integration varies considerably across the different sectors of the economy, with a higher degree of digitisation in services rather than in manufacturing<sup>8</sup>. The digital transformation is reaching out to some traditional industries as well, for example forestry or for active participation in construction projects. Nevertheless, more efforts could be made to promote the digital transformation to further traditional economy sectors.

### **Highlight 2018: Slovenia — a blockchain hub in Europe**

Blockchain technology has become popular in Slovenia. According to the latest estimates, there are between 30 and 50 companies involved in blockchain technology and the number is constantly increasing. According to Google trends, Slovenia is among the top five countries interested in blockchain technology in global terms<sup>9</sup>. Several start-ups finance the launch of ICT innovative projects by initial coin offers (ICO).

While the question of the legal status of blockchain technology in Slovenia remains unsettled, the Digital Strategy wants to position Slovenia as a recognisable blockchain destination in the EU. In the absence of a regulatory framework, the Ministry of Public Administration, in cooperation with the Slovenian Digital Coalition (digitalna.si), established a Blockchain Think Tank, which connects all stakeholders in this field and monitors the evolution of blockchain technology in Slovenia. Currently around 500 stakeholders are part of the Blockchain Think Tank.

As trading with cryptocurrencies and initial coin offers became very popular in an unregulated environment, financial service regulators and authorities have started monitoring cryptocurrencies in the framework of the Financial Stability Board.

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<sup>7</sup> <http://cio.si/>

<sup>8</sup> <http://www.stat.si/StatWeb/News/Index/6373>

<sup>9</sup> <https://trends.google.com/trends/explore?date=today%203-m&q=bitcoin>



## 5 Digital Public Services

| 5 Digital Public Services | Slovenia |       | Cluster | EU    |
|---------------------------|----------|-------|---------|-------|
|                           | rank     | score | score   | score |
| DESI 2018                 | 16       | 57,3  | 58,5    | 57,5  |
| DESI 2017                 | 16       | 51,0  | 54,9    | 53,7  |

|   | Slovenia  |      |           |      | EU        |
|---|-----------|------|-----------|------|-----------|
|   | DESI 2018 |      | DESI 2017 |      | DESI 2018 |
|   | Value     | Rank | value     | rank | value     |
| <b>5a1 eGovernment Users<sup>10</sup></b><br>% internet users needing to submit forms                       | 54% ↑     | 18   | 50%       | 19   | 58%       |
|   | 2017      |      | 2016      |      | 2017      |
| <b>5a2 Pre-filled Forms</b><br>Score (0 to 100)   | 51 ↑      | 14   | 43        | 16   | 53        |
|   | 2017      |      | 2016      |      | 2017      |
| <b>5a3 Online Service Completion</b><br>Score (0 to 100)  | 83 ↓      | 17   | 84        | 14   | 84        |
|   | 2017      |      | 2016      |      | 2017      |
| <b>5a4 Digital Public Services for Businesses</b><br>Score (0 to 100) — including domestic and cross-border | 73 ↑      | 23   | 67        | 24   | 83        |
|   | 2017      |      | 2016      |      | 2017      |
| <b>5a5 Open Data</b><br>% of maximum score  | 82% ↑     | 7    | 60%       | 12   | 73%       |
|   | 2017      |      | 2016      |      | 2017      |
| <b>5b1 eHealth Services</b>   | 27%       | 6    | NA        |      | 18%       |

In 2017, Slovenia made more digital public services available which resulted in a higher take-up of eGovernment users and a substantial increase of use of pre-filled forms. However, the values remain lower than the EU average. Slovenia has considerably improved its performance in the Digital Public Services dimension due to a significant increase in the re-use of public sector data (from 60 % to 82 %). Slovenia ranks 7<sup>th</sup> in the re-use of public sector data and 6<sup>th</sup> in eHealth services. All basic public services for citizens are available online and for legal entities about 80 % of them are now online. The gap between all citizens and internet users can explain why Slovenia's figures are lower than the EU averages. 65 % of individuals who use the internet have interacted with the public authorities online in the last 12 months.

The Ministry of Public Administration has taken a clear lead in coordinating digital public services in Slovenia. This Ministry is responsible for telecom regulation, e-Government, access to public sector data, data policy, network security and e-IDAS regulation implementation.

Slovenia supports the goals and principles set out in the EU's e-Government Action Plan. The Digital Slovenia 2020 Strategy provides for the roll-out of digital public services by 2020 at all levels of government. The strategy introduces the 'digital by default' and 'once only'

<sup>10</sup> 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.

principles and encompasses the development of various key enablers for access and interoperability of eGovernment services.

Digitisation contributes to the transparency of public administration in Slovenia. Almost all documents for meetings of the government<sup>11</sup> and parliament<sup>12</sup> are available online. Several applications make it possible to monitor public procurement expenses<sup>13</sup> and the use of public funds (including pensions, salaries of public employees, health expenditure and public utility services)<sup>14</sup>. Slovenia is one of the first EU Member States to have a public beneficial owner register online<sup>15</sup>.

By the end of 2017, about 65 public institutions had opened their data for re-use and there are now 3 700 data sets available to the public across all governmental departments. The Ministry of Public Administration is harvesting data sets from the Statistical Office and plans to include also data from sources such as the Parliament, the Bank of Slovenia, the cadastre and public utilities providers.

The high ranking in eHealth is explained by a generalised roll-out of e-prescriptions, which allows physicians to prescribe medicines to patients electronically. Patients can fill out their e-prescriptions in any pharmacy, using their health insurance card<sup>16</sup>. The roll-out of e-referrals to secondary care (specialists and hospitals) was also launched in 2017. The Ministry of Health expects that e-referrals will replace paper-based referrals within one year<sup>17</sup>.

Slovenia is well on track, but promotion of user-friendly digital public services needs to be enhanced to increase their take-up.

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<sup>11</sup> [http://www.vlada.si/delo\\_vlade/gradiva\\_v\\_obravnavi/](http://www.vlada.si/delo_vlade/gradiva_v_obravnavi/).

<sup>12</sup> <https://www.dz-rs.si/wps/portal/Home/deloDZ/Porocevalec/GradivaDZ>.

<sup>13</sup> Statist: <https://ejn.gov.si/statist>.

<sup>14</sup> <https://erar.si/>

<sup>15</sup> [https://www.ajpes.si/Registri/Drugi\\_registri/Register\\_dejanskih\\_lastnikov/Splosno](https://www.ajpes.si/Registri/Drugi_registri/Register_dejanskih_lastnikov/Splosno).

<sup>16</sup> <http://www.nijz.si/sl/erecep>.

<sup>17</sup> [http://www.mz.gov.si/si/medijsko\\_sredisce/novica/article/670/7411/](http://www.mz.gov.si/si/medijsko_sredisce/novica/article/670/7411/)