About the DESI

The European Commission has been monitoring Member States’ digital competitiveness with the Digital Economy and Society Index (DESI) reports since 2015. The set of reports includes both country profiles and thematic chapters.

The DESI country reports combine quantitative evidence from the DESI indicators across the five dimensions of the index with country-specific policy insights and best practices. An in-depth telecoms chapter is annexed to the reports for each Member State.

The thematic chapters present a European-level analysis of broadband connectivity, digital skills, use of the internet, digitisation of businesses, digital public services, the ICT sector and its R&D spending, and Member States’ use of Horizon 2020 funds.

To improve the methodology and take account of the latest technological developments, a number of changes have been made to the DESI for 2019. The DESI now covers:

- 5G readiness,
- Above basic digital skills,
- At least basic software skills,
- Female ICT specialists,
- ICT graduates,
- People who never used the internet,
- Professional social networks,
- Doing an online course,
- Online consultations and voting,
- Individuals selling online,
- Big data,
- Medical data exchange and
- e-Prescriptions.

The DESI was re-calculated for all countries for previous years to reflect the above changes in the choice of indicators and corrections to the underlying data. Country scores and rankings may thus have changed compared with previous publications.

Cyprus overview

<table>
<thead>
<tr>
<th>Year</th>
<th>Rank</th>
<th>Score</th>
<th>EU Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESI 2019</td>
<td>22</td>
<td>45.8</td>
<td>52.5</td>
</tr>
<tr>
<td>DESI 2018</td>
<td>22</td>
<td>43.2</td>
<td>49.8</td>
</tr>
<tr>
<td>DESI 2017</td>
<td>22</td>
<td>40.5</td>
<td>46.9</td>
</tr>
</tbody>
</table>

Cyprus ranks 22nd out of the 28 EU Member States in the European Commission’s Digital Economy and Society Index (DESI) 2019.

Cyprus has improved in the areas of Connectivity, Use of internet services, Integration of digital technology and Digital public services, although it still scores below the EU average. However, Cyprus performed less well in the Human capital during the period concerned.

In mobile broadband take-up, Cyprus is above the EU average. However, it is well below the EU average in the take-up of fast broadband. Almost a sixth of Cypriots have never used the Internet, and half lack basic digital skills.

Despite growing demand in the labour market, the supply of ICT specialists is still below the EU average.

Cyprus has made most progress with Connectivity, in which it also ranks higher than in 2017.

The current ‘Digital Strategy for Cyprus’[^1], which started in 2012 and updated in 2015 and in 2018, is in line with the objectives and measures proposed in the Digital Agenda for Europe, and will...

contribute substantially to economic growth and productivity. The Ministry of Education and Culture (MoEC\(^2\)) places particular emphasis on developing measures that can contribute to the acquisition of the necessary digital skills at all levels of education. The ‘Cyprus national reform programme\(^3\)’, published in 2015 and updated in April 2018, is in line with the Commission’s Annual Growth Survey. Additionally, the current plans of the Ministry of Transport, Communications and Work (MoTCW\(^4\)) include the emerging technologies (i.e. Artificial Intelligence, high performance computing and blockchain) in the updated Digital Strategy. The MoTCW is also in the process of drafting the new National Digital Strategy.

## 1 Connectivity

<table>
<thead>
<tr>
<th>1 Connectivity</th>
<th>Cyprus rank</th>
<th>Cyprus score</th>
<th>EU score</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESI 2019</td>
<td>21</td>
<td>55.7</td>
<td>59.3</td>
</tr>
<tr>
<td>DESI 2018</td>
<td>21</td>
<td>49.4</td>
<td>54.8</td>
</tr>
<tr>
<td>DESI 2017</td>
<td>22</td>
<td>45.3</td>
<td>51.2</td>
</tr>
</tbody>
</table>

Cyprus ranks 21st in Connectivity, scoring 55.7. It lags behind the EU average (59.3), but is gradually closing the gap. It performs well in fixed broadband coverage (100%) and fast broadband coverage (90%, 11th). The same is true of fixed broadband take-up (85%, 6th) and mobile broadband take-up (112, 8th). In these categories, Cyprus is above the EU average and its scores are improving. On the other hand, it still lags behind in ultrafast broadband coverage, fast and ultrafast broadband uptake and the broadband price index. In all these categories, it ranks among the lowest in the EU (23rd for ultrafast broadband coverage and 27th for the other three indicators). Cyprus has closed the gap with the EU average for 4G coverage, but it is continuing to lose ground with fast and ultrafast broadband uptake. Given the widespread coverage of fast broadband networks and the reasonable coverage of ultrafast ones, this slow uptake may be partly attributable to retail offers, which remain unattractive.
The updated Cyprus Broadband Plan applied for the period 2019-2020, sets targets in line with the Digital Agenda for Europe. While it makes reference to the European gigabit society and the 5G Action Plan, it does not include any concrete actions, since operators are currently in the process of updating their investment plans; in addition, a relevant detailed mapping is currently being drafted. The plan does not provide for any supply side measures, in view of operators’ plans for investment in fast and ultrafast broadband networks. However, it acknowledges the difficulties of commercial deployment in remote rural areas and considers the possibility of public interventions to bridge the geographical divide. Measures focus on stimulating demand, through such means as awareness campaigns, e-government projects and subsidies for new or upgraded subscriptions to ultra-fast speeds. Moreover, 19 local authorities (out of 105 applicants) were selected in the first bid under the WiFi4EU programme. The implementation of several e-government actions has been delayed, mainly as a result of court cases, which frequently accompany public procurement. The Ministry of Transport, Communications and Work is developing a new National Broadband Plan that will apply for 2021-2025.

There is a growing market interest in 5G, and all three mobile operators have asked for pilot rights of use in the 3.5 GHz band. Cyprus has issued these rights, which will apply until the auction of the 5G spectrum gets under way, which is currently expected to take place in Q4 2019. Cyprus is working hard to resolve outstanding problems to do with the 700MHz band and to include it in the auction of 5G spectrum and has requested EU assistance for cross-border coordination with third countries since 22 August 2017. 505 MHz or 23 % of the spectrum harmonised at EU level for wireless broadband has been assigned in Cyprus.

Fixed network coverage is among the factors boosting Cyprus’ ability to benefit from the digital economy. The main challenge remains to encourage take-up of high-speed broadband, which is influenced by factors such as pricing, a lack of compelling content and low digital literacy. Market players seem keen to invest in new networks and launch 5G services. A new broadband strategy and plan, setting concrete targets and measures in line with the European gigabit society and the 5G action plan, may help catalyse such action. Another important enabler is the timely award of spectrum. Unwillingness of local authorities to grant permits for antenna masts and delays in the relevant procedures could obstruct and deter the deployment of such networks.

---

5 'Αναθεωρημένο ευρυζωνικό πλάνο της Κύπρου 2016-2020', published on 18/1/2019
6 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Connectivity for a Competitive Digital Single Market — Towards a European Gigabit Society (COM (2016) 587 final)
7 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions — 5G for Europe: An action plan (COM (2016) 588 final)
2 Human capital

<table>
<thead>
<tr>
<th>2 Human capital</th>
<th>Cyprus</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>rank</td>
<td>score</td>
<td>score</td>
</tr>
<tr>
<td>DESI 2019</td>
<td>24</td>
<td>34.6</td>
</tr>
<tr>
<td>DESI 2018</td>
<td>22</td>
<td>36.2</td>
</tr>
<tr>
<td>DESI 2017</td>
<td>24</td>
<td>34.2</td>
</tr>
</tbody>
</table>

In the Human capital dimension, Cyprus ranks 24th among EU countries and is below the EU average. Although Cypriots increasingly going online, basic and advanced digital skills levels remain below the EU average. Only 50 % of individuals aged between 16 and 74 have basic digital skills, almost 40 % of these also have above basic digital skills. Despite the small increase since 2017 (2.3 %), ICT specialists are still a lower proportion of the workforce than in the EU as a whole (3.7 %). Cyprus ranks 23rd out of all Member States in terms of ICT specialists. The number of female ICT specialists, expressed as a share of total female employment, has not improved since DESI 2018, indeed the percentage has fallen by 0.2 percentage points to 0.7 %, far below the EU average of 1.4 %.

The national reform programme focuses on digital entrepreneurship, digital skills, women in digital and the national plan for the Coalition. The National Coalition aims to improve the dissemination and the improvement of digital skills, to tackle the mismatch between the small number of ICT professionals and the higher number of vacancies. The National Coalition has been issuing European Computer Driving Licence (ECDL) certificates secondary school pupils and to the unemployed. Its underlying goal is to acquire robots and robotic trucks for organising competitions in schools. From 2019 to 2020, 205 robots and robotic trucks will be placed in 205 schools all over Cyprus, to train IT teachers in robotics and hold competitions in this field. In the 2018-2019 school year, robotics has been introduced as a new module in the computer science in the second year of upper secondary school.
As part of the newly established National Youth Strategy, Cyprus’ Youth Board (ONEK) is implementing programmes to promote Science, Technology, Engineering, and Mathematics (STEM) in education. In 2017, the ‘STEAMers’, a programme which seeks to combine Science and Technology with the Arts, was introduced on a small scale. It includes after-school workshops for young people on topics such as robotics, programming, music, photography, painting, theatre and creative writing. The programme provides comprehensive cross-curricular programmes for children and teenagers aged 6-16, covering STEM in an integrated way.

The Digital Skills and Jobs Coalition, designed to improve overall digital skills is actively tackling the digital skills gap in Cyprus. Cyprus also participated in EU Code Week, organising more than 30 events. It is also vital for women to play more active role in ICT. Measures for promoting women’s participation will be included in the forthcoming ‘Strategic Action Plan on Gender Equality’. The Office of the Commissioner of Gender Equality and the National Mechanism for Women’s Rights held a workshop on the major social and economic benefits for women and the overall economy, of having more women in ICT. Their aim is to promote female employment and entrepreneurship and reduce inequalities in the labour market.

To match the demand for ICT specialists and fill existing vacancies, it would be beneficial for Cyprus to continue promoting digital skills initiatives to improve skills in this area. In addition, it is important to promote measures for encouraging the participation of women in ICT and in STEM studies.

---

**Highlight 2019: Use of tablets at primary and secondary schools**

Cyprus started distributing tablets in primary and secondary schools during the period under consideration. The pilot programme launched in February 2019 will run for 18 months. The main aim is to step up the digital transition in schools. 125 tablets have been distributed to primary schools and 125 to secondary schools. The ultimate aim is to replace pupils’ textbooks and exercise books by tablets and to use them in the classroom. Pupils will also be able to use tablets to do their homework.

---

10 http://www.digitaljobs.cyprus-digitalchampion.gov.cy/el/page/home
11 https://codeweek.eu/
3 Use of internet services

<table>
<thead>
<tr>
<th>DESI 2019</th>
<th>DESI 2018</th>
<th>DESI 2019</th>
<th>DESI 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>rank</td>
<td>score</td>
<td>rank</td>
<td>score</td>
</tr>
<tr>
<td>Cyprus</td>
<td>EU</td>
<td>Cyprus</td>
<td>EU</td>
</tr>
<tr>
<td>DESI 2019</td>
<td>22</td>
<td>46.1</td>
<td>53.4</td>
</tr>
<tr>
<td>DESI 2018</td>
<td>22</td>
<td>43.5</td>
<td>50.7</td>
</tr>
<tr>
<td>DESI 2017</td>
<td>21</td>
<td>40.2</td>
<td>47.8</td>
</tr>
</tbody>
</table>

Overall, the Use of internet services in Cyprus is below the EU average. Cypriots are keen to engage in a variety of online activities as it is the case elsewhere in the EU. The most popular activities are listening to music, watching videos and playing games (87%). 80% of Cypriot internet users read news online, in comparison with 72% in the EU. Cypriots are active internet users, but participation in online consultations and voting (3%), and online shopping (38%) are far below the EU average. Furthermore, the number of users selling online is less widespread than in other EU countries. However, Cypriots are active users of the social media, with 82% social network users, putting Cyprus in fifth place among EU countries.
4 Integration of digital technology

<table>
<thead>
<tr>
<th>4 Integration of digital technology</th>
<th>Cyprus rank</th>
<th>EU score</th>
<th>DESI 2019</th>
<th>DESI 2018</th>
<th>DESI 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESI 2019</td>
<td>20</td>
<td>41.1</td>
<td>38.0</td>
<td>36.6</td>
<td>36.2</td>
</tr>
<tr>
<td>DESI 2018</td>
<td>20</td>
<td>39.6</td>
<td>36.6</td>
<td>39.6</td>
<td>37.6</td>
</tr>
<tr>
<td>DESI 2017</td>
<td>16</td>
<td>37.6</td>
<td>36.2</td>
<td>37.6</td>
<td>39.6</td>
</tr>
</tbody>
</table>

On the Integration of digital technology in businesses, Cyprus ranks 20th among EU countries, the same place as in 2017. 37% of enterprises use social media, almost one in ten SMEs use e-invoicing and 9% of SMEs are selling online services or products cross-border to other EU countries. The total number of SMEs selling online increased slightly to 12% from 11% in 2017, but remains below the EU average. 5% of enterprises analyse big data for their business purposes.

Cyprus underperforms on e-commerce, ranking below the EU average. However, the attitude towards e-commerce has gradually changed, and customers are becoming more familiar with online transactions. The main obstacle identified to developing e-commerce in Cyprus is the lack of confidence in the security of online transactions. The Ministry of Energy, Commerce, Industry and Tourism is currently taking specific measures, such as amending existing legislation on e-commerce to safeguard the security of online transactions. A scheme, which the Ministry is expected to launch, will involve creating e-shops and e-platforms in Cyprus. A call for tenders is expected to be held in the course of 2019, with a budget of EUR 4.5 million.

The Department of Electronic Communications of the MoTCW has taken on the role of policy coordinator on technologies associated with Artificial Intelligence and high performance computing. Also, the Ministry of Finance took on the role of policy coordinator on technologies related to blockchain. These technologies will be part of Cyprus’ updated Digital Strategy, which is currently being drawn up. The Department has held several meetings with stakeholders of the Cyprus research...
ecosystem to gather information about these technologies. With their help, will be able to promote initiatives and measures to benefit both research community and Cypriot society.

Cyprus is committed to making progress on new digital technologies and investing in digital technologies, through EU-coordinated programmes. Cyprus is a member of the EuroHPC Joint Undertaking. The country has also signed the Declaration on the Cooperation Framework on HPC, Declaration of European Blockchain Partnership, and the Declaration on cooperation on Artificial Intelligence (AI).

The national Cybersecurity Strategy that was published in 2013 takes a holistic approach and covers a number of specific strategic measures. Having been revised in 2018, the strategy is now more structured in its approach, includes specific targets for capacity maturity at national level across a number of dimensions (e.g. cybercrime), coordinated by the new Digital Security Authority. In 2019, a national cybersecurity competence centre will be established in cooperation with the Digital Security Authority, the Ministry of Education and other competent authorities.

Raising awareness of the relevance and potential of the digitisation of SMEs will boost the digital transformation of Cypriot SMEs. The ‘Cyprus Industrial Strategy Policy’ was launched in the spring of 2018. It aims to gradually raise industry’s contribution to GDP from 8%, (the figure for 2017), to 15% by 2030. Smart manufacturing and digitisation are two of the seven pillars underpinning the strategy.
### Digital public services

<table>
<thead>
<tr>
<th>Digital public services</th>
<th>Cyprus</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESI 2019</td>
<td>19</td>
<td>62.9</td>
</tr>
<tr>
<td>DESI 2018</td>
<td>17</td>
<td>57.9</td>
</tr>
<tr>
<td>DESI 2017</td>
<td>17</td>
<td>54.0</td>
</tr>
</tbody>
</table>

#### DESI 2017, DESI 2018, DESI 2019

- **5a1 e-Government users**: 53%, EU 64%
  - 2017: 49%
  - 2018: 53%
  - 2019: 58%
- **5a2 Pre-filled forms**: 58%
  - 2016: 52%
  - 2017: 58%
  - 2018: 58%
- **5a3 Online service completion**: 78%
  - 2016: 73%
  - 2017: 77%
  - 2018: 78%
- **5a4 Digital public services for businesses**: 90%
  - 2016: 91%
  - 2017: 91%
  - 2018: 90%
- **5a5 Open data**: 80%
  - 2018: NA
  - 2019: 80%

#### Health services

- **5b1 e-Health services**: 9%
  - 2017: NA
  - 2018: 9%
- **5b2 Medical data exchange**: 14%
  - 2018: NA
  - 2019: 14%
- **5b3 e-Prescription**: 28%
  - 2018: NA
  - 2019: 28%

In the Digital public services domain, Cyprus ranks 19th among EU countries. This is below the EU average and shows a decline since 2017. Cyprus performs very well in open data, with 16 percentage points above the EU average of 64%. However, online interaction between the public authorities and citizens is still limited, with only 50% of Cypriots interacting online. Only 53% of individuals send pre-filled forms to public administrations, which is still significantly below the EU average (64%). Regarding the interaction of businesses with the public authorities, Cyprus performs well, despite a small decrease since 2017. The country ranks 25th as regards e-health services. Only 9% of Cypriots used online health and care services during the period of question. General practitioners (GPs) did not make extensive use of e-prescriptions (only 28% of GPs), while only 14% of GPs exchanged medical data online.

The Digital Strategy and the reform programme include measures to advance e-government and e-health, enhance the capacity of public sector by delivering more e-services and facilitate cross-border collaboration.

The government has taken steps to enable seamless digital service provision across administrations and collaboration in the public service. It has also begun to use social media channels such as Facebook and Twitter to communicate with the citizens. The Department of Information Technology
Services prepared the ‘Getting Started with Social Media’ document with information and recommendations to help government organisations to make efficient use of social media platforms. Regarding the use of eID, the e-government Board has decided to purchase it from the private sector instead of developing government public key infrastructure (PKI). Qualified certificates for e-signatures and e-identification are designed to establish a high assurance level based on the eIDAS Regulation and national legislation. Some time ago, the government signed an agreement with Estonia’s e-Government Academy. This agreement enabled Cyprus to draw on Estonian expertise to draft its policy and Action Plan for the eID (e-signature and e-identification) project, which were completed in May 2017.

The main barriers to deploy e-health shown to be issues of interoperability between systems, data security, lack of awareness and knowledge among health professionals and patients, resistance to change and lack of trust. The Ministry of Health and the eHealth Lab of the University of Cyprus are participating in the Connecting Europe Facility (CEF) initiative for achieving cross-border interoperability. e-Health law is under discussion in Parliament, and once a new law has been approved, it will introduce the uniform Electronic Health Record (EHR) for all citizens. Through EHR, all the interoperability preconditions will be satisfied at national and cross-border levels and all public hospitals and health centres will be fully interoperable. The e-health law will also regulate all private health institutions.

Full implementation of the national reform programme could result in more significant improvements in digital public administration. In addition, the EHR for all citizens will facilitate the use of e-health systems by citizens and improve Cyprus’ provision of such services. In addition, the implementation of e-government actions on time, under the supervision of the e-government Board, can be a catalyst in this direction.

---