



Digital Economy and Society Index (DESI)

2019 Country Report

Greece

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:

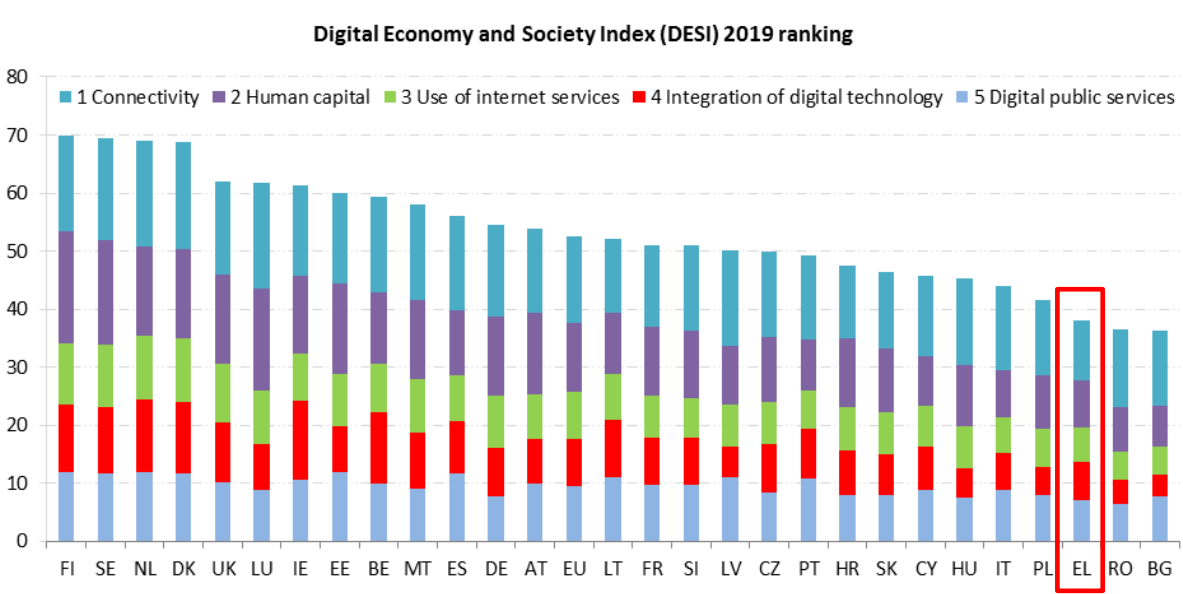
- *5G readiness,*
- *Above basic digital skills,*
- *At least basic software skills,*
- *Female ICT specialists,*
- *ICT graduates,*
- *People who never used the internet,*
- *Professional social networks,*
- *Doing an online course,*
- *Online consultations and voting,*
- *Individuals selling online,*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

For further information, please consult the DESI website: <https://ec.europa.eu/digital-single-market/en/desi>.

Greece overview

	Greece		EU
	rank	score	score
DESI 2019	26	38.0	52.5
DESI 2018	28	34.9	49.8
DESI 2017	26	33.1	46.9



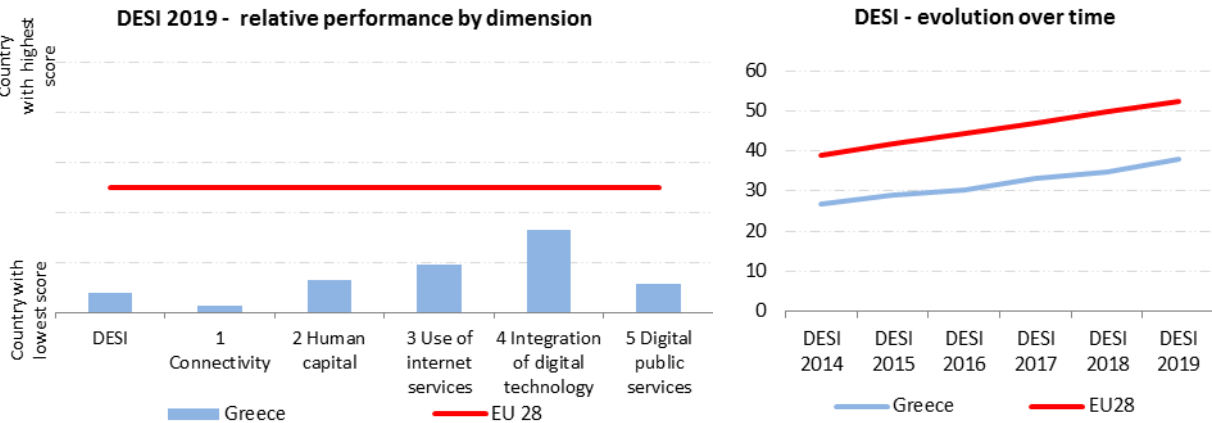
Greece ranks 26th out of the 28 EU Member States in the European Commission Digital Economy and Society Index (DESI) 2019.

Over the last year, Greece progressed slightly more than the EU average increase. The improvement of its score is due to an improved performance in some of the DESI dimensions measured. Greece marginally improved its performance as regards Human capital increasing the percentage of Information and Communication Technology (ICT) specialists in total employment for the third consecutive year, and increasing the number of ICT graduates for the second year running. It also improved the supply side of digital public services. However, the country still scores below the EU average.

In connectivity, the transition to fast and ultrafast broadband is much slower than in the rest of Europe. Although the national broadband plan has been updated, there are still considerable delays in project implementation and the absorption of the funds allocated. Speeding up 5G development will also help improve Greece’s digital status. On the positive side, the number of internet users is growing. Greeks are active users of internet services such as video calls and taking online courses. However, progress with integrating digital technology into business has been slow, apart from the use of big data by enterprises, which is higher than the EU average.

Among all dimensions, Greece ranks highest in the integration of digital technology. However, the best progression compared to last year is in the Digital public services dimension where there has been an increase of 7.4 points.

The current Greek National Digital Strategy (NDS)¹ (2016-2021) constitutes the framework for the country’s digital transformation. It includes: 1) the deployment of digital infrastructures; 2) boosting digital skills for the public and workers; 3) investment and creating an appropriate legal framework for the digital transformation of economic sectors and businesses; 4) expanding e-government. The NDS was confirmed in July 2018 with the publication of the Growth Strategy for Greece², which includes a chapter on the digital economy.

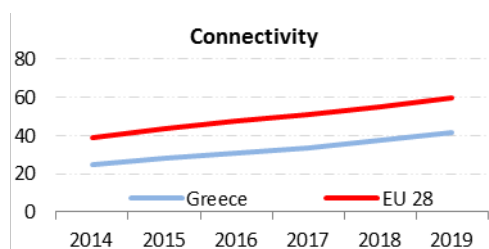


¹ <http://www.mindigital.gr/index.php/κείμενα-στρατηγικής/220-digital-strategy-2016-2021>

² <http://www.mindev.gov.gr/greece-a-growth-strategy-for-the-future/>

1 Connectivity

1 Connectivity	Greece		EU
	rank	score	score
DESI 2019	28	41.2	59.3
DESI 2018	28	37.4	54.8
DESI 2017	28	33.5	51.2



	DESI 2017	Greece		EU	
	value	DESI 2018	DESI 2019	rank	DESI 2019
1a1 Fixed broadband coverage % households	96%	96%	96%	17	97%
1a2 Fixed broadband take-up % households	66%	69%	74%	15	77%
1b1 4G coverage % households (average of operators)	77%	86%	92%	23	94%
1b2 Mobile broadband take-up Subscriptions per 100 people	50	66	74	25	96
1b3 5G readiness Assigned spectrum as a % of total harmonised 5G spectrum	NA	NA	0%	13	14%
1c1 Fast broadband (NGA) coverage % households	48%	53%	66%	26	83%
1c2 Fast broadband take-up % households	5%	7%	11%	28	41%
1d1 Ultrafast broadband coverage % households	NA	0.4%	0.4%	28	60%
1d2 Ultrafast broadband take-up % households	0.01%	0.01%	0.10%	28	20%
1e1 Broadband price index Score (0 to 100)	70	70	65	28	87

With an overall connectivity score of 41.2, Greece ranks last among EU countries; there has been no improvement in rank since 2017. It features wide availability of fixed broadband (96% coverage, slightly lower than the 97 % EU average), but take-up is still progressing slowly, reaching 74 % (below the EU average of 77 %). This could be linked to prices, which remain relatively high compared with the EU average; as Greece now ranks last among EU countries on the broadband price index as well. Despite a progress of 13 percentage points, Greece ranks 26th amongst EU countries in NGA coverage per household, far below the EU average of 83 %. Moreover, the country has almost no ultrafast broadband networks. Despite the 8-point increase in mobile broadband take-up, the current figure is 74 subscriptions per 100 people, well below the EU average of 96 subscriptions per 100 people. While subscriptions to fast broadband have increased by 4 percentage points to 11 %, they remain well below the EU average of 41 %. Greece's 4G performance is better, with coverage reaching 92 %, close to the EU average of 94 %.

In 2018, Greece updated the projects forming part of the National Broadband Plan to meet the Gigabit Society targets. Only future-proof infrastructures providing at least 100 Mbps is now funded

(in most cases, upgradability to one Gbps is a prerequisite). The Superfast Broadband project, approved in December 2018 by the European Commission, is a demand stimulation scheme involving vouchers, which is designed to support Greece's take-up of broadband services with download speeds of at least 100 Mbps. The project's maximum overall budget is estimated at EUR 50 million per year, to be funded from national resources, under the general state budget. The large-scale broadband project Ultrafast Broadband (UFBB) has been approved by the Intergovernmental Project Committee. The project's total budget is EUR 700 million, of which EUR 300 million is a public contribution, the remaining EUR 400 million being from private sources. The UFBB project is designed to cover most areas of the country that will remain NGA white, about 2.5 million people (about 18 % of the active lines) at national level. There is a trend to upgrade the planned VDSL (vectoring) plans with fibre technologies (FTTB/FTTH). Greece is one of the successful Member States in the WiFi4EU³ first call as it won 117 vouchers (about 40 % of those applied, 268 in total).

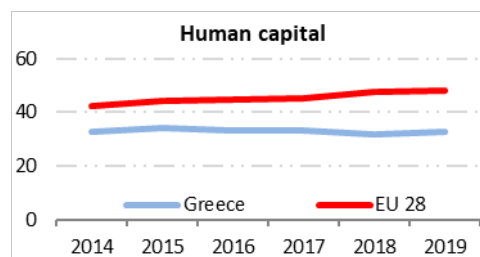
The General Secretariat of Telecommunications and Post has established a special task force to coordinate all issues regarding 5G development in Greece, including the plan to achieve the Gigabit Society targets for 5G. Three Greek cities, namely Trikala, Kalamata and Zografou, have signed memorandums of understanding for the deployment of pilot 5G networks. Moreover, an agreement has been signed with Bulgaria and Serbia to implement a 5G pilot cross-border corridor. In Greece 32 % of the total spectrum harmonised at EU level for wireless broadband has been assigned. The Ministry of Digital Policy Telecommunications and Media published the national roadmap for the release of 700 MHz setting 15 December 2020 as the final date for the start of the use of the band for wireless broadband. The indicative date of granting rights of use for 5G networks in the band 3.4-3.8 GHz is the end of 2019.

Despite the update of the national broadband plan and the progress of the vectoring implementation, remaining sizeable delays in implementing the projects and in the absorption of the funds allocated have meant that Greece has not improved its connectivity score; it still ranked last among EU countries in 2018. Greece hopes to benefit from addressing these delays by creating the right conditions for private investment in order to improve its digital competitiveness. Tackling the significant delays in proceedings for antenna permit granting and promoting 5G development will improve the country's digital status. In addition to this, the Regulator could continue to secure the timely and correct implementation of regulatory decisions. Moreover, it is important that Greece take appropriate measures and address the issues concerning the implementation of the European emergency number 112 without further delay.

³ <https://ec.europa.eu/digital-single-market/en/policies/wifi4eu-free-wi-fi-europeans>

2 Human capital

2 Human capital	Greece		EU
	rank	score	score
DESI 2019	25	32.7	48.0
DESI 2018	26	31.9	47.6
DESI 2017	25	33.2	45.4



	Greece		EU	
	DESI 2017	DESI 2018	DESI 2019	DESI 2019
	value	value	value	Rank
2a1 At least basic digital skills	46%	46%	46%	25
% individuals	2016	2017	2017	2017
2a2 Above basic digital skills	19%	22%	22%	23
% individuals	2016	2017	2017	2017
2a3 At least basic software skills	53%	52%	52%	21
% individuals	2016	2017	2017	2017
2b1 ICT specialists	1.2%	1.4%	1.6%	28
% total employment	2015	2016	2017	2017
2b2 Female ICT specialists	0.4%	0.4%	0.4%	28
% female employment	2015	2016	2017	2017
2b3 ICT graduates	4.4%	3.0%	3.2%	18
% graduates	2014	2015	2016	2015

In the Human capital dimension, Greece's performance remains well below the EU average, but it is making progress. In 2017, only 46 % of individuals between 16 and 74 had at least basic digital skills (57 % in the EU). Among the 54 % who do not have basic digital skills, 31 % of individuals have no digital skills at all (the EU average being 17 %). In addition, Greece continues to have the lowest share of ICT specialists in total employment in the EU: 1.6 % in 2017, compared with an EU average of 3.7 % But there has been some slight progress in the last three years. Nevertheless, a significant gender gap is also observed with only 10.9 % of employed people in the ICT sector being women. Furthermore, the proportion of ICT specialists in total female employment is also very low, at 0.4 % compared with the EU average (1.4 %), and it has stagnated over the last three years. Referring to the proportion of ICT graduates in the total pool of graduates (3.2 %) means that Greece is performing below the EU average.

Several initiatives aiming at upgrading digital skills and competences among the public, Small and Medium Size Enterprises (SMEs) and civil servants have been initiated in the context of the Greek National Coalition for Digital Skills⁴ launched in June 2018. At the end of 2018, the Greek Coalition counted 24 partners, among them key policy makers for digital skills, such as ministries, municipal authorities and enterprises. Coordinated by the innovation unit at the Ministry of Administrative Reconstruction (MAR), the Greek Coalition launched an initiative to encourage enterprises to participate to the Digital Opportunity Traineeships pilot programme through online support and a

⁴ <http://www.nationalcoalition.gov.gr/>

series of seminars in cooperation with regional chambers of commerce. By the end of 2018, about 100 companies had expressed an interest in offering traineeships.

MAR has established an Action Plan for 2019-2022, its goal being to coordinate actions to develop digital skills taken by major players in the Greek Coalition. It emphasises innovative methods and practices tested by the Coalition's coordinator in 2018, with the aim of reducing potential overlaps, focuses on the economy's need for digital skills, and addresses the need for social inclusion.

In the area of upskilling by the end of 2018, implementation of the training, certification and counselling programme in the field of ICT⁵ for young unemployed people aged between 18 and 24 enabled 3000 trainees to take part, and 15000 counselling sessions.

The shortfall of digital skills remains a major obstacle for Greece if it is to achieve its goals in terms of growth opportunities and the digital society and economy. Upscaling existing initiatives will be crucial in this respect. Increasing the number of Greek ICT specialists and closing the gender gap are very important if the country is to benefit fully from the digital economy.

Highlight 2019: EU Code week⁶ in Greece, 6-21 October 2018

During EU Code Week, a total of 368 activities were held throughout Greece, covering 37.200 participants whose average age was 11. 44.4 % of participants were girls or women.

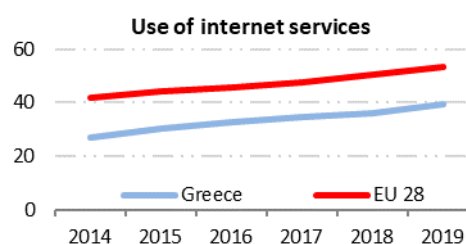
The Ministry of Administrative Reconstruction (MAR) as coordinator of the Greek Coalition for Digital Skills held a national activity to promote the inclusion of coding in school curricula. It was attended by 108 children aged 8-11 and 27 ICT teachers from primary schools all over Greece (with a female participation of approximately 52 %). After this event, the MAR launched a pilot innovation project called 'Code my city', which involved over 250 pupils and lasted until March 2019. The students practised their coding skills in the classroom before presenting a cultural aspect of their city at an event held on 30th of March 2019.

⁵ <http://www.sepe.gr/gr/information/training-certification-consulting-unemployed-18-24-ict-skills/>

⁶ The EU Code Week is a grass-root initiative which aims to bring coding and digital literacy to everybody in a fun and engaging way. Schools, teachers, libraries, code clubs, businesses, public authorities can organise a #CodeEU event.

3 Use of internet services

3 Use of internet services	Greece		EU
	rank	score	score
DESI 2019	26	39.4	53.4
DESI 2018	26	35.9	50.7
DESI 2017	26	34.5	47.8

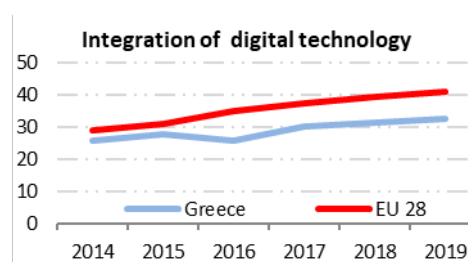


	DESI 2017	Greece		EU	
	value	DESI 2018	DESI 2019	rank	DESI 2019
3a1 People who never used the internet % individuals	28%	28%	25%	27	11%
	2016	2017	2018		2018
3a2 Internet users % individuals	66%	67%	70%	26	83%
	2016	2017	2018		2018
3b1 News % internet users	85%	87%	87%	8	72%
	2016	2017	2017		2017
3b2 Music, videos and games % internet users	77%	77%	79%	18	81%
	2016	2016	2018		2018
3b3 Video on demand % internet users	12%	12%	11%	25	31%
	2016	2016	2018		2018
3b4 Video calls % internet users	46%	48%	61%	7	49%
	2016	2017	2018		2018
3b5 Social networks % internet users	68%	72%	73%	13	65%
	2016	2017	2018		2018
3b6 Professional social networks % internet users	7%	8%	8%	23	15%
	2015	2017	2017		2017
3b7 Doing an online course % internet users	8%	7%	7%	13	9%
	2016	2017	2017		2017
3b8 Online consultations and voting % internet users	8%	5%	5%	21	10%
	2015	2017	2017		2017
3c1 Banking % internet users	28%	36%	38%	26	64%
	2016	2017	2018		2018
3c2 Shopping % internet users	45%	45%	49%	22	69%
	2016	2017	2018		2018
3c3 Selling online % internet users	3%	3%	5%	27	23%
	2016	2017	2018		2018

Overall, the Use of internet services in Greece is well below the EU average. However, the number of internet users is growing and a large percentage of them - above the EU average - are keen to engage in a variety of online activities. The most popular of these are reading news online, making video calls, using social networks and taking online courses. 87 % of Greek internet users read news online, which is well above the EU average of 72 %. Use of video calls reached 61% in 2018 (48 % in 2017) and is more widespread than in other EU countries (49 % in 2018). However, although the use of online banking is growing for the third year in a row (38 %), the percentage remains far below the EU average of 64 %. The same applies to shopping online, which is progressing with 49% of internet users, but remains below the EU average of 69 %.

4 Integration of digital technology

4 Integration of digital technology	Greece		EU
	rank	score	score
DESI 2019	22	32.8	41.1
DESI 2018	22	31.5	39.6
DESI 2017	22	30.2	37.6



	DESI 2017	Greece		EU	
	value	DESI 2018	DESI 2019	rank	DESI 2019
4a1 Electronic information sharing % enterprises	37%	37%	37%	12	34%
4a2 Social media % enterprises	20%	21%	21%	12	21%
4a3 Big data % enterprises	11%	11%	13%	13	12%
4a4 Cloud % enterprises	6%	5%	7%	26	18%
4b1 SMEs selling online % SMEs	10%	11%	11%	24	17%
4b2 e-Commerce turnover % SME turnover	6%	3%	4%	26	10%
4b3 Selling online cross-border % SMEs	3%	7%	7%	21	8%

On the Integration of digital technology by businesses, Greece ranks 22th among EU countries, well below the EU average. While the country's ranking has stayed the same, there has been some slight progress with some indicators. The enterprises in Greece are increasingly taking advantage of the opportunities provided by big data: 13 % of them report using big data (above the EU average of 12 %). 21 % of enterprises use social media, as much as the EU average. However, only 7 % of enterprises use cloud computing; while this represents a 2 % increase since last year, it remains below the EU average (18 %). SMEs selling online in 2018 stagnate at 11 %, the same as in 2017. Their e-commerce turnover also remains low at a mere 4% of total turnover.

Access to finance for SMEs and framework conditions for entrepreneurship, innovation and start-ups remains difficult. In 2018, a new fund-of-funds programme - the Equifund⁷ - was launched to meet start-ups' need for private equity and venture capital especially in the ICT sector and innovative digital technologies. The effort to create Digital Innovation Hubs (DIHs) continued with DIHs covering advanced technologies such as robotics, cloud computing and big data.

At the end of 2018, the Ministry of Digital Policy in collaboration with the Ministry of Rural Development and Food launched a national initiative for the digital transformation of the agricultural sector, based on precision farming technologies to be used by 450,000 farmers.

⁷ <https://equifund.gr/>

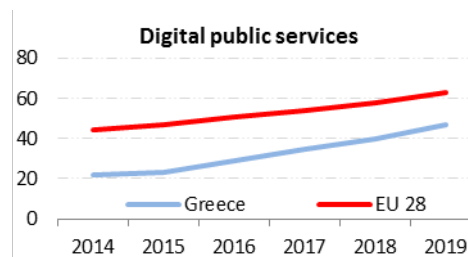
Greece's National Digital Strategy for 2016-2021 plans investment to boost ICT industry. The aim is to develop the ICT ecosystem further, and to promote innovation and entrepreneurial development in ICT sectors and other sectors of the economy. This will give young graduates in STEM fields, opportunities to take part in developing a digital economy.

In 2018, Greece also showed its commitment to advancing new digital technologies - in line with the Digital Europe Programme - and to investing strategically in digital technologies through EU-coordinated programmes. In May, Greece signed the Declaration of European Blockchain Partnership and the Declaration on cooperation on Artificial Intelligence. The country is also a member of the EuroHPC Joint Undertaking.

To boost the digital transformation of the Greek economy and capture the full range of benefits from the adoption of digital technologies, it is important to speed up the implementation of measures relating to the digitisation of the economy for which the National Digital Strategy makes provision.

5 Digital public services

5 Digital public services	Greece		EU
	rank	score	score
DESI 2019	27	46.9	62.9
DESI 2018	28	39.5	57.9
DESI 2017	28	34.5	54.0



	DESI 2017	Greece		EU	
	value	DESI 2018	DESI 2019	rank	DESI 2019
5a1 e-Government users % internet users needing to submit forms	42%	38%	36%	28	64%
	2016	2017	2018		2018
5a2 Pre-filled forms Score (0 to 100)	5	14	23	26	58
	2016	2017	2018		2018
5a3 Online service completion Score (0 to 100)	63	76	82	22	87
	2016	2017	2018		2018
5a4 Digital public services for businesses Score (0 to 100) - including domestic and cross-border	59	60	65	26	85
	2016	2017	2018		2018
5a5 Open data % of maximum score	NA	NA	74%	8	64%
			2018		2018
5b1 e-Health services % individuals	NA	10%	10%	23	18%
		2017	2017		2017
5b2 Medical data exchange % of general practitioners	NA	NA	25%	18	43%
			2018		2018
5b3 e-Prescription % of general practitioners	NA	NA	NA ⁸		50%
			2018		2018

In the Digital public services dimension, Greece ranks 27th among EU countries, well below the EU average, but it is progressing at a rate above the EU average; Greece's score rose by 7.4 points in 2018 while the average EU increase, over the same period, was only 5 points. Greece is performing very well as regards the Open data maturity indicator, with a total of 74 % well above the EU average of 64 %. On the supply side (in the provision of online public services), Greece continued to progress in 2018, with 23/100 pre-filled forms compared with 14/100 in 2017, however, it still scores well below the EU average. Moreover, only 36 % of internet users are active users of e-government services, against an EU-wide average of 64 %. The availability of digital public services for businesses, on the other hand, increased significantly with a score of 65. This compares favourably with the increase between 2016 (59) and 2017 (60). For e-health services, Greece ranks below the EU average; only 10 % of people have used health and care services provided online.

In 2018, Greece continued to implement measures for smart administration based on the 2017-2019 National Strategy for Administrative Reform⁹. In January, the National Citizens Registry¹⁰ was set up to reduce the need for members of the public to produce multiple documents for simple

⁸ Data has been removed due to potential inconsistencies

⁹ <http://www.minadmin.gov.gr/?p=24473>

¹⁰ <https://www.eu-go.gr/sdportal/article.jsp?id=34&lang=EN>

administrative procedures, as documents became available to other public agencies. The Greek business portal¹¹ also provided a new e-service for registering a company in the General Electronic Commercial Registry.

Greece has established a National Cyber Security Authority at the Ministry of Digital Policy, Telecommunications and Media, responsible for implementing the National Cybersecurity Strategy¹². The strategy is designed to develop a secure cyberspace for both private and public stakeholders by improving capabilities for protection against cyber-attacks and by developing a strong culture of cybersecurity among the general public and private sector stakeholders.

In the field of e-health, Greece has been implementing a national e-prescription system¹³ since 2013. It covers medication, registration of consultations and the examinations referrals. The system shows a large coverage of users with 53.000 physicians and 11.000 pharmacies, for an estimation of 6 million prescriptions/month and 3 million patients/month. In 2018, the interoperability of 71 hospitals was finalised (project eGov Now¹⁴) providing data and web services on functions such as management of pharmacy/logistics, patient care and appointments (e.g. hospital results). A telemedicine programme is being implemented in 100 remote and border municipalities throughout Greece giving residents of remote areas access to basic medical examinations locally and thereby reducing geographical barriers to the prevention of illnesses.

Continuing and speeding-up the implementation of digital solutions to modernise the Greek public sector and offer a comprehensive e-government system that works well, including e-health services, will improve the provision of public service.

¹¹ <http://www.businessportal.gr/>

¹² <https://www.enisa.europa.eu/topics/national-cyber-security-strategies/ncss-map>

¹³ <https://www.e-prescription.gr/>

¹⁴ <http://www.ktpae.gr/NEA/oloklirosi-diasindesis-bi-ygeias>