Digital Economy and Society Index (DESI)

2019 Country Report

Italy

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:

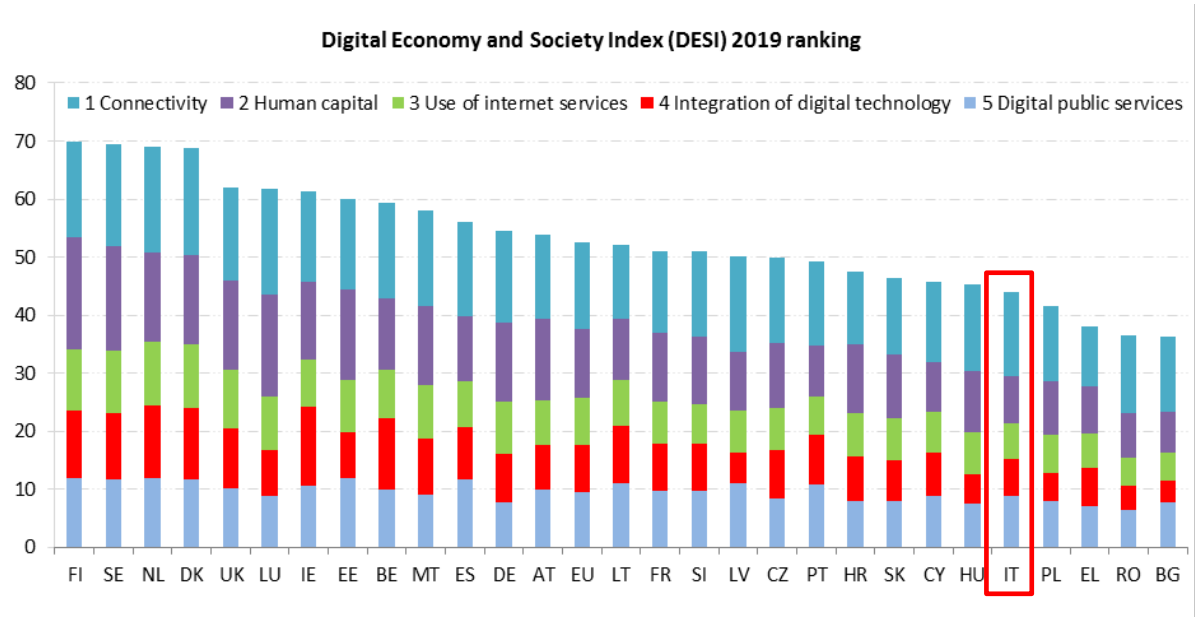
- *5G readiness,*
- *Above basic digital skills,*
- *At least basic software skills,*
- *Female ICT specialists,*
- *ICT graduates,*
- *People who never used the internet,*
- *Professional social networks,*
- *Doing an online course,*
- *Online consultations and voting,*
- *Individuals selling online,*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

Italy overview

	Italy		EU
	rank	score	score
DESI 2019	**24**	**43.9**	**52.5**
DESI 2018	24	38.9	49.8
DESI 2017	24	36.5	46.9

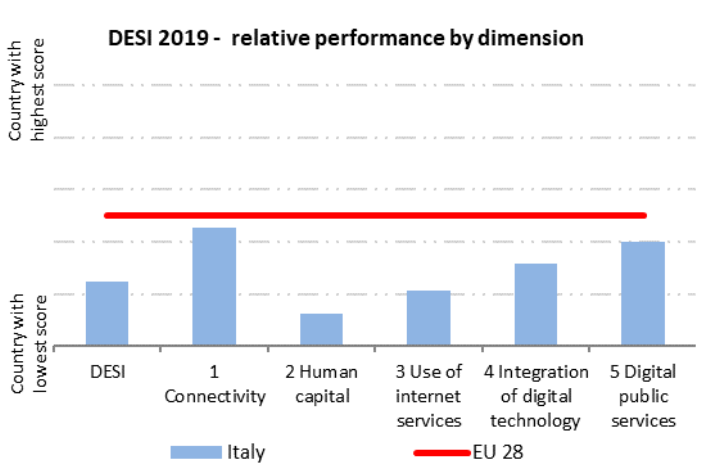


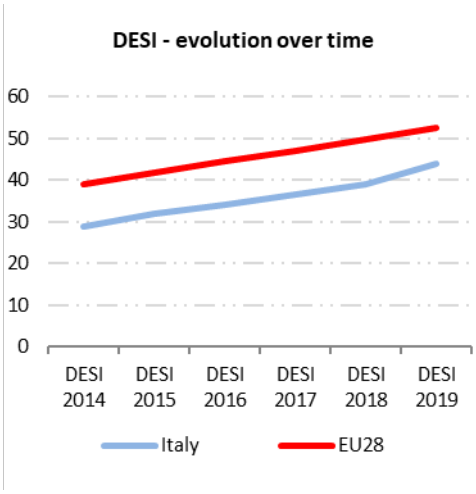
Italy ranks 24th out of the 28 EU Member States in the European Commission Digital Economy and Society Index (DESI) 2019.

Italy performs relatively well, although still below the EU average, as regards Connectivity and Digital public services. Online public services and open data are readily available, and take-up of e-health services is good. Fast broadband coverage and take-up are progressing well (although the latter remains below average), while ultrafast connectivity is progressing far more slowly. Italy is advanced in the assignments of 5G spectrum.

However, three out of ten people are not regular internet users yet, and more than half of the population still lacks basic digital skills. This shortfall in digital skills is also reflected in low use of online services, with which little progress has been made. Low demand also affects supply, with fewer Italian SMEs selling online than their EU peers. However, Italian enterprises score better on the use of electronic information-sharing software and social media.

Italy adopted the national Digital Agenda Strategy 2014-2020[1] and the National ultra-broadband Strategy in March 2015[2]. In September 2016, Italy developed its Industry 4.0 Strategy, renamed 'Impresa 4.0'[3] in 2017 to emphasise its broader scope, as it includes service sector enterprises as well as industry. The current government has confirmed that the Industry 4.0 Strategy will be continued (with some and/or modified measures). It is also providing renewed support for the Digital Agenda Strategy through a more active political steering.





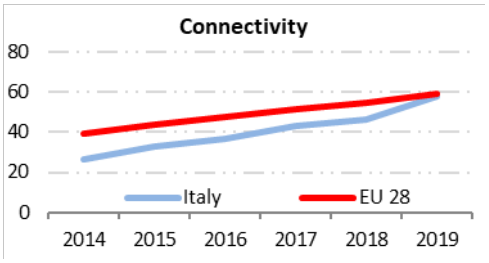
[1] https://www.agid.gov.it/sites/default/files/repository_files/documentazione/strategia_crescita_digitale_ver_def_21062016.pdf

[2] http://bandaultralarga.italia.it/piano-bul/strategia/.

[3] https://www.mise.gov.it/index.php/it/industria40

1 Connectivity

1 Connectivity	Italy		EU
	rank	score	score
DESI 2019	**19**	**57.6**	**59.3**
DESI 2018	26	46.5	54.8
DESI 2017	26	43.4	51.2



	Italy				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
1a1 Fixed broadband coverage % households	**99%** 2016	**99%** 2017	**>99.5%** 2018	***9***	**97%** 2018
1a2 Fixed broadband take-up % households	**55%** 2016	**57%** 2017	**60%** 2018	***24***	**77%** 2018
1b1 4G coverage % households (average of operators)	**86%** 2016	**91%** 2017	**97%** 2018	***13***	**94%** 2018
1b2 Mobile broadband take-up Subscriptions per 100 people	**85** 2016	**86** 2017	**89** 2018	***17***	**96** 2018
1b3 5G readiness Assigned spectrum as a % of total harmonised 5G spectrum	**NA**	**NA**	**60%** 2018	***2***	**14%** 2018
1c1 Fast broadband (NGA) coverage % households	**72%** 2016	**87%** 2017	**90%** 2018	***10***	**83%** 2018
1c2 Fast broadband take-up % households	**7%** 2016	**12%** 2017	**24%** 2018	***23***	**41%** 2018
1d1 Ultrafast broadband coverage % households	**NA**	**22%** 2017	**24%** 2018	***27***	**60%** 2018
1d2 Ultrafast broadband take-up % households	**1%** 2016	**5%** 2017	**9%** 2018	***24***	**20%** 2017
1e1 Broadband price index Score (0 to 100)	**90** 2016	**88** 2017	**91** 2018	***6***	**87** 2017

With an overall Connectivity score of 57.6, Italy ranks 19th among EU countries; it has moved up seven positions in the ranking by comparison with last year's DESI ranking. Fixed broadband coverage increased slightly to over 99.5 %. Italy continued to significantly increase its fast broadband (NGA) coverage, reaching 90 % of households and thereby outstripping the EU average (83 %). As regards ultrafast (100 Mbps and above) broadband coverage, Italy is still lagging behind (only 24 %, compared with the EU average of 60 %) and ranks near the bottom (27th) with a still moderate growth rate. While fixed broadband take-up has increased slightly, Italy still lags behind the EU average and ranks 24th among EU countries. Mobile broadband take-up (89 subscriptions per 100 people) remains below the EU average (96 subscriptions per 100 people). Take-up of fast broadband has improved significantly but remains low in absolute and comparative terms, with Italy still ranking 23rd in the EU. Both ultrafast broadband coverage and take-up are far below the EU averages. However, broadband prices in Italy are lower than the EU average.

With the official award in December 2018 of the third and last public tender, valued at EUR 103 million, to roll out high-speed broadband in white areas of Calabria, Apulia and Sardinia,

Open Fiber has been awarded all three tenders launched by Infratel in the context of the national ultra-broadband (UBB) plan. The objective of this plan is to provide connectivity with at least 100 Mbps to 85 % of the Italian population, guaranteeing coverage of at least 30 Mbps download speed to all members of the public by 2020.

While Open Fiber has finished working on 40 out of the 950 construction sites, active and passive service trials have been launched in only 4 municipalities[4]. In commercially viable areas, 3.3 million households were passed by Open Fiber by September 2018. Flashfiber, the joint venture between TIM and Fastweb launched in July 2016, is currently deploying an FTTH network in 29 major cities. By 30 June 2018, 650,000 addresses were reported to be connected with fibre[5]. In April 2018, the new Investment Plan in grey areas (originally planned for about EUR 2.1 billion) was published and submitted to public consultation. The Italian authorities are currently assessing and choosing the necessary intervention model, of which the European Commission will be notified in due course. A second investment plan including measures to support demand is also being planned and is expected to be notified to the European Commission, which will assess whether it complies with EU state aid rules.

Following a public call for projects launched by the Ministry of Economic Development (MISE) in 2017, pre-commercial 5G trials are being carried out in three geographical areas, with several use cases being tested[6]. Other 5G trials, based on voluntary agreements between operators and municipalities, are being conducted in Rome, Turin, Naples and Genoa. 94 % of the spectrum harmonised at EU level for wireless broadband has been assigned in Italy. The auction for the assignment of spectrum in the 5G pioneer bands (700 MHz, 3.6 GHz and 26 GHz) was held in 2018. While the 3.6 GHz and 26 GHz bands had to be made available by 1 December 2018, the 700 MHz band is expected to be made available only by July 2022. This explains why Italy scores only 60 % in the 5G readiness indicator, but still ranks 2nd. The 3.6 GHz spectrum, in which 5G services are first expected to be deployed, was assigned at high prices relative to the investment needs, i.e. at an average price of EUR 36 cents/pop/MHz, which is the highest arising from assignments in Europe so far. Italy has asked the European Commission to help address unresolved spectrum coordination issues with non-EU countries.

The rising trend in infrastructure-based competition has resulted in a constantly improving level of rollout of fibre-based next generation access (NGA), thereby significantly improving Italy's position as regards connectivity. Some progress, albeit slow, was registered with implementing the national UBB plan. The complexity and fragmentation of the procedure for granting local permits may have adversely affected the initial phase of the UBB strategy in white areas. Improving the effectiveness of initiatives by the Italian authorities in this respect could result in better outcomes for the national broadband strategy.

4 https://openfiber.it/it/fibra-ottica/comunicati/open-fiber-collegati-primi-clienti-della-rete-interamente-fibra-ottica-nelle-aree-dei-bandi-infratel

5 https://www.flashfiber.it/copertura/

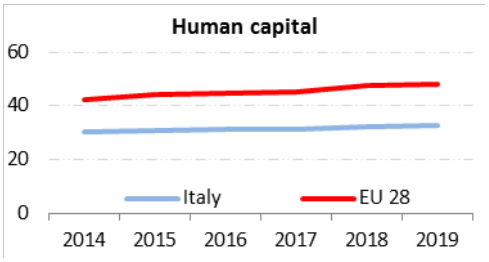
6 Milan metropolitan area, the cities of Prato and L'Aquila, and the cities of Bari and Matera. The ongoing 5G trials started at the end of 2017 and may continue until June 2020.

Highlight 2019: WiFi°Italia°it

In 2017, the "WiFi°Italia°it" project was launched to enable users to connect easily to a free of charge and widespread WiFi network throughout the country through the use of an application for mobile devices that provides access to federated WiFi networks.
The Interministerial Committee for Economic Programming, CIPE, decided to assign about EUR 100 million to developing WiFi and new technologies (such as Artificial Intelligence, the Internet of Things and blockchain). Of this sum, EUR 5 million have been earmarked for phase II of the wifi.italia.it project, which will extend the footprint of the WiFi network, with a focus on the areas hit by the violent earthquake of 2016 and on further developing the wifi.italia.it app.

2 Human capital

2 Human capital	Italy		EU
	rank	score	score
DESI 2019	**26**	**32.6**	**48.0**
DESI 2018	25	32.2	47.6
DESI 2017	26	31.1	45.4



	Italy				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
2a1 At least basic digital skills % individuals	**44%** 2016	**NA** 2017	**NA** 2017		**57%** 2017
2a2 Above basic digital skills % individuals	**19%** 2016	**NA** 2017	**NA** 2017		**31%** 2017
2a3 At least basic software skills % individuals	**48%** 2016	**NA** 2017	**NA** 2017		**60%** 2017
2b1 ICT specialists % total employment	**2.5%** 2015	**2.6%** 2016	**2.6%** 2017	***22***	**3.7%** 2017
2b2 Female ICT specialists % female employment	**0.8%** 2015	**0.9%** 2016	**1.0%** 2017	***20***	**1.4%** 2017
2b3 ICT graduates % graduates	**0.9%** 2014	**NA** 2015	**1.0%** 2016	***28***	**3.5%** 2015

In the Human capital dimension, Italy ranks 26th among EU countries and is thus below the EU average. The basic and advanced digital skills levels of Italians are below the EU average. Only 44 % of people aged 16-74 years have basic digital skills (57 % in the EU as a whole). The percentage of ICT specialists has remained stable. ICT specialists still account for a lower proportion of the workforce compared with the EU as a whole (2.6 % compared with an EU average of 3.7 %). When it comes to graduates holding an ICT degree, Italy performs well below the EU average with only 1 % of ICT graduates. Only 1 % of female workers are ICT specialists.

As regards digital skills, the National Plan for Digital School that was launched in 2015 has had only modest results so far. For instance, only 20 % of teachers have ever taken any training in digital literacy and 24 % of schools still lack coding courses. As part of Italy's Industry 4.0 Strategy, the government earmarked resources for an annual 700 PhD slots[7] in Industry 4.0 subjects. However, by the end of 2017 (last available year), only 41 of such PhD courses were active (out of a total of 815), with a total of 400 places available.

The forthcoming changes in the rules defined by the Ministry of Education, University and Research should, however, make such courses more widely available in the future. Italy's participation in EU Code Week (a grassroots initiative to promote coding and digital literacy) has been the highest in the EU, with more than 20,000 events held in 2018 and 750,000 people attending. Italy has no national

[7] Industrial Ph.D. courses are courses whose contents are defined in collaboration with enterprises or private research institutions and the latter usually participate in financing part of their costs.

digital skills and jobs coalition[8], but a wide range of private enterprises, NGOs and public organisations have made 56 pledges[9] for specific measures such as training digital experts, re-skilling and up-skilling the labour force, and equipping people with the digital skills they need for their lives. Tax credits for expenditure on training in '*Impresa 4.0*' topics, initially introduced for 2018 only, have been extended to cover 2019 as well.

Only 92 % of 16-24-year-olds are regular internet users, which puts Italy last in the EU28 (the EU28 average being 97 % of people in this age group).[10] These data show the urgency of investing more resources in the National Plan for Digital Schools, especially in primary and secondary education, to tackle the lack of digital skills among young people. In post-secondary and tertiary education, the effectiveness of such investment will also depend on the success of the Industry 4.0 strategy in creating the necessary demand for ICT professionals. Italy has no comprehensive digital skills strategy apart from the National Plan for Digital Schools, which means that groups at risk of social exclusion, such as the elderly and people out of work, are also at risk of a widening digital divide.

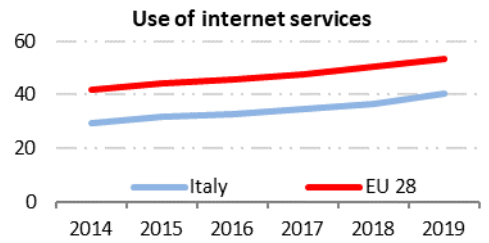
[8] The Digital Skills and Jobs Coalition is one of the 10 key actions under the New Skills Agenda for Europe. It has been operational since 2016 and brings together Member States and stakeholders from the private and public sectors to develop a large digital talent pool and ensure that Europe's citizens and labour force are equipped with adequate digital skills.

[9] http://pledgeviewer.eu/pledges/?offset=50&country=17

[10] Source: Digital scoreboard, https://ec.europa.eu/digital-single-market/en/digital-scoreboard

3 Use of internet services

3 Use of internet services	Italy		EU
	rank	score	score
DESI 2019	**25**	**40.4**	**53.4**
DESI 2018	25	36.6	50.7
DESI 2017	25	34.8	47.8

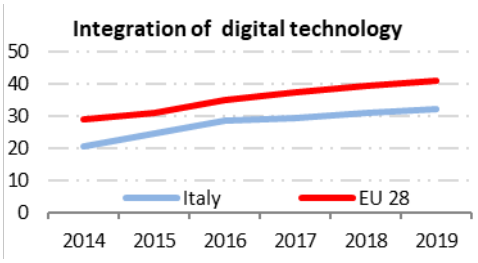


	Italy				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
3a1 People who never used the internet % individuals	**25%** 2016	**22%** 2017	**19%** 2018	***23***	**11%** 2018
3a2 Internet users % individuals	**67%** 2016	**69%** 2017	**72%** 2018	***24***	**83%** 2018
3b1 News % internet users	**60%** 2016	**56%** 2017	**56%** 2017	***28***	**72%** 2017
3b2 Music, videos and games % internet users	**79%** 2016	**79%** 2016	**79%** 2018	***19***	**81%** 2018
3b3 Video on demand % internet users	**15%** 2016	**15%** 2016	**23%** 2018	***15***	**31%** 2018
3b4 Video calls % internet users	**34%** 2016	**39%** 2017	**47%** 2018	***20***	**49%** 2018
3b5 Social networks % internet users	**60%** 2016	**61%** 2017	**63%** 2018	***24***	**65%** 2018
3b6 Professional social networks % internet users	**12%** 2015	**12%** 2017	**12%** 2017	***17***	**15%** 2017
3b7 Doing an online course % internet users	**7%** 2016	**8%** 2017	**8%** 2017	***11***	**9%** 2017
3b8 Online consultations and voting % internet users	**9%** 2015	**9%** 2017	**9%** 2017	***15***	**10%** 2017
3c1 Banking % internet users	**42%** 2016	**43%** 2017	**46%** 2018	***24***	**64%** 2018
3c2 Shopping % internet users	**41%** 2016	**44%** 2017	**47%** 2018	***25***	**69%** 2018
3c3 Selling online % internet users	**9%** 2016	**11%** 2017	**11%** 2018	***23***	**23%** 2018

Overall, the Use of internet services remains well below the EU average. 19 % of people living in Italy, almost double the EU average, have still never used the internet. None of the online activities monitored here score above the EU average. The most popular online activities are listening to or downloading music, watching videos and playing games, followed by using social networks and reading news (although this activity ranks last in the EU28). Doing a course online is the least popular activity (although it is more popular than in other EU countries). Using video on demand services (23 %, against 31 % in the EU as a whole) is the online activity, which has increased most (8 percentage points) over the past year.

4 Integration of digital technology

4 Integration of digital technology	Italy		EU
	rank	score	score
DESI 2019	**23**	**32.3**	**41.1**
DESI 2018	23	31.2	39.6
DESI 2017	23	29.6	37.6



	Italy				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
4a1 Electronic information sharing % enterprises	**36%** 2015	**37%** 2017	**37%** 2017	***13***	**34%** 2017
4a2 Social media % enterprises	**16%** 2016	**17%** 2017	**17%** 2017	***16***	**21%** 2017
4a3 Big data % enterprises	**9%** 2016	**9%** 2016	**7%** 2018	***24***	**12%** 2018
4a4 Cloud % enterprises	**12%** 2016	**NA** 2017	**15%** 2018	***18***	**18%** 2018
4b1 SMEs selling online % SMEs	**7%** 2016	**8%** 2017	**10%** 2018	***26***	**17%** 2018
4b2 e-Commerce turnover % SME turnover	**6%** 2016	**6%** 2017	**8%** 2018	***19***	**10%** 2018
4b3 Selling online cross-border % SMEs	**5%** 2015	**6%** 2017	**6%** 2017	***22***	**8%** 2017

As regards the Integration of digital technology by businesses, Italy ranks 23rd among EU countries, well below the EU average; it ranks the same as in DESI 2018. There has been some progress in the use of cloud services and e-commerce. However, Italian enterprises continue to lag behind in taking advantage of the opportunities offered by online commerce. Only 10 % of SMEs sell online (well below the EU average of 17 %), 6 % sell cross border, and an average of 8 % of their turnover comes from online sales. Over 37 % of enterprises share information electronically across business departments (above the EU average of 34 %).

Italy is committed to advancing new digital technologies and investing strategically in digital technologies through EU-coordinated programmes. It is a member of the EuroHPC Joint Undertaking; it has also signed the Declaration establishing a European Blockchain Partnership and the Declaration on Cooperation on Artificial Intelligence. Italy has had an Industry 4.0 strategy since 2016, which the current government has confirmed as a priority, though with some changes. Tax deductions for Industry 4.0-related investment have been extended to 2019, though at altered rates, focusing on SMEs. Instead of a 150 % flat extra deduction, the rate now falls with the size of investments, and there is a cap on deductible investments[11]. An additional measure has been introduced to help SMEs in their digital transformation - a EUR 40,000 voucher to hire an innovation manager. As part of the

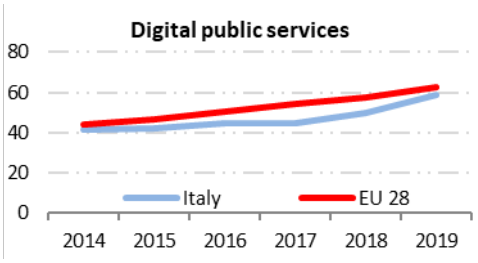
[11] 170 % for investments up to EUR 2.5 million, 100 % from EUR 2.5 million to EUR 10 million and 50 % between EUR 10 million and EUR 20 million.

Industry 4.0 strategy, 22 Digital Innovation Hubs are already active, providing Italian SMEs with services to facilitate their digital transformation and networking in larger digital value chains. Additional instruments, such as the *Punti Impresa Digitale* (89 so far), promote digitisation, mostly of service sector enterprises. The final component of the Industry 4.0 strategy is the competence centres, designed to provide technological advice, to enable SMEs to experiment with new technologies and related ICT training. These centres are finally starting to operate after delays caused by lengthy administrative procedures and court appeals on the tendering for their public funding. Almost all had started work by early 2019.

To boost the digital transformation of the Italian economy, it is important to raise awareness of the relevance of digitisation in SMEs. Refocusing some incentives on SMEs is a step in the right direction, but further systemic efforts are needed to raise their level of digitisation towards that of Italian enterprises' main competitors.

5 Digital public services

5 Digital public services	Italy		EU
	rank	score	score
DESI 2019	**18**	**58.7**	**62.9**
DESI 2018	19	49.9	57.9
DESI 2017	20	45.0	54.0



	Italy				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
5a1 e-Government users % internet users needing to submit forms	**NA** 2016	**30%** 2017	**37%** 2018	***27***	**64%** 2018
5a2 Pre-filled forms Score (0 to 100)	**33** 2016	**33** 2017	**48** 2018	***19***	**58** 2018
5a3 Online service completion Score (0 to 100)	**84** 2016	**89** 2017	**91** 2018	***12***	**87** 2018
5a4 Digital public services for businesses Score (0 to 100) - including domestic and cross-border	**81** 2016	**81** 2017	**85** 2018	***17***	**85** 2018
5a5 Open data % of maximum score	**NA**	**NA**	**80%** 2018	***4***	**64%** 2018
5b1 e-Health services % individuals	**NA**	**24%** 2017	**24%** 2017	***8***	**18%** 2017
5b2 Medical data exchange % of general practitioners	**NA**	**NA**	**30%** 2018	***13***	**43%** 2018
5b3 e-Prescription % of general practitioners	**NA**	**NA**	**32%** 2018	***20***	**50%** 2018

As regards Digital public services, Italy ranks 18th among EU Member States. The country performs very well in open data and e-health services. However, there is a low level of online interaction between public authorities and the public: only 37 % of Italian internet users needing to send forms did so online. In 2018, Italy performed better than in 2017 as regards services involving pre-filled forms, e-government users and digital public services for businesses. It is the EU's fourth best performer on open data, with a score of 80 %. Italy ranks eighth in the EU in e-health services; 24 % of Italians have used health and care services provided online. 32 % of general practitioners use e-prescription.

The Digital Italy Agency (AgID) and the Digital Transformation Team are coordinating the digitisation of public services. Results in those local public administrations that are rapidly digitising their services have been good. However, the degree of autonomy enjoyed by local public administrations means that these agencies have been much less successful in coordinating the less cooperative local public administrations. Thus, although some major e-government projects have improved their rate of adoption, concerns remain about the digitisation of the last quintile of local public administrations. The eIDAS compliant e-identity system *(Sistema Pubblico di Identità Digitale*) has reached 3.4 million subscribers and 4,000 active public administrations. The centralisation of digital population registries (*Anagrafe Nazionale Popolazione Residente*) speeded up in 2018, but it covers only 21 % of Italian municipalities. In an effort to increase the take-up of online public services, the government is

developing a smartphone app to make public services easily accessible through mobile devices. The success of the app will depend on how many services it can make available.

13 of 20 Italian regions have now adopted the electronic health record, which can make patient health records available to both patient and doctors (including information on hospitalisations, medicines prescribed and clinical examinations) in electronic format (although only a minority of such records cover all health services). 11 regions have adopted interoperable health records which can dialogue with each other.

Under a new law, some of the powers of the ad-hoc commissioner for the implementation of digital agenda policies have been transferred to the Prime Minister (or delegated Minister). The commissioner's powers are extensive, as he or she can take action where non-compliant administrations fail to do so. The fact that the government wants to take over these powers, previously held by the Director of the Digital Transformation Team, could indicate that digitisation is a higher priority for the new government. However, it could make things more difficult during the transition from the Digital Transformation Team to the new structure.