Digital Economy and Society Index (DESI)

2019 Country Report

Austria

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:

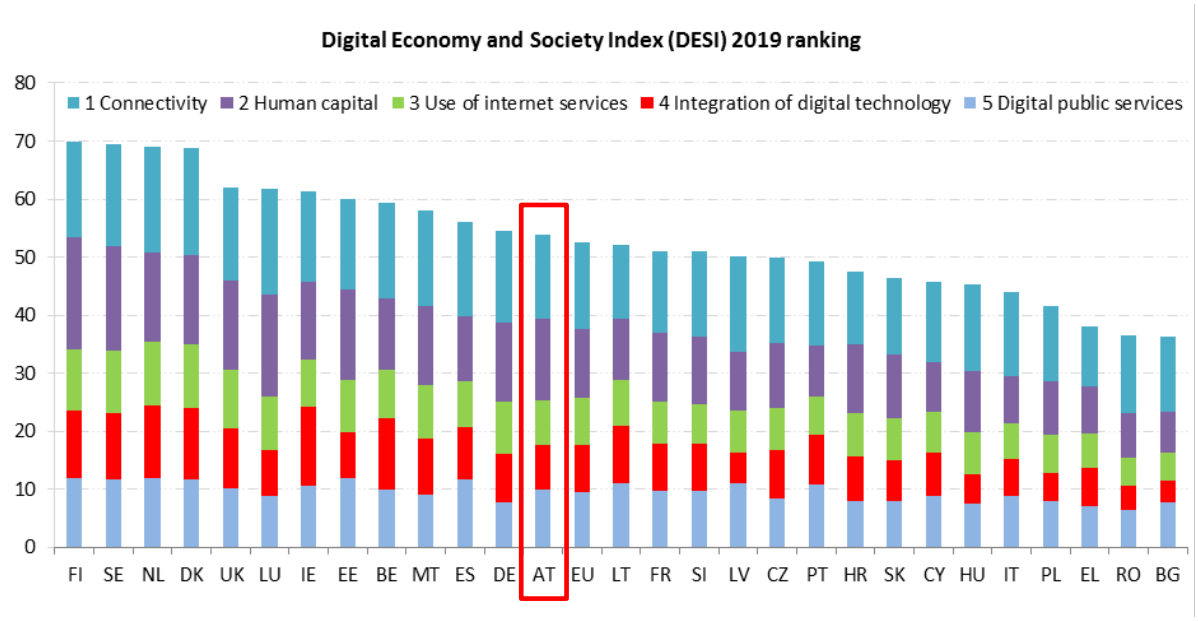
- *5G readiness,*
- *Above basic digital skills,*
- *At least basic software skills,*
- *Female ICT specialists,*
- *ICT graduates,*
- *People who never used the internet,*
- *Professional social networks,*
- *Doing an online course,*
- *Online consultations and voting,*
- *Individuals selling online,*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

Austria overview

	Austria		EU
	rank	score	score
DESI 2019	**13**	**53.9**	**52.5**
DESI 2018	12	51.9	49.8
DESI 2017	12	49.2	46.9

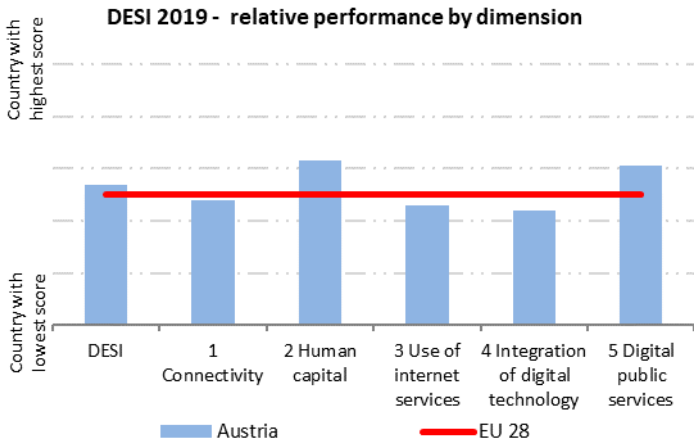


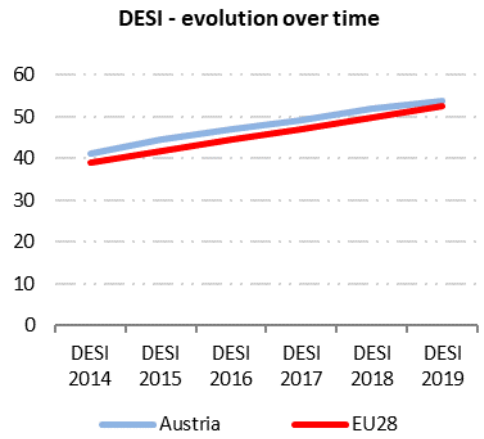
Austria ranks 13th out of the 28 EU Member States in the European Commission Digital Economy and Society Index (DESI) 2019.

Its score increased only slightly due to a limited performance in some of the DESI dimensions. While Austria remains slightly above the EU average, the distance to the best peforming countries has increased. Austria is an above average performer in Human capital and Digital public services. While basic and advanced digital skills of Austrian citizens are above the EU average, they remain below the tops performers and there is a growing lack of skilled IT workers in the economy. It performs below average in Connectivity, Use of internet services and Integration of digital technologies. In particular, Austrian enterprises do not take full advantage of the use of digital tehchologies such as e-invoicing, cloud services or selling online.

The 'Digital Roadmap Austria' was published in January 2017 under the previous government. The current government incorporated many of the strategy's measures in its government programme. A

new digital strategy, building on the Digital Roadmap, is currently being developed.[1] Its goal is to make Austria a digital leader.

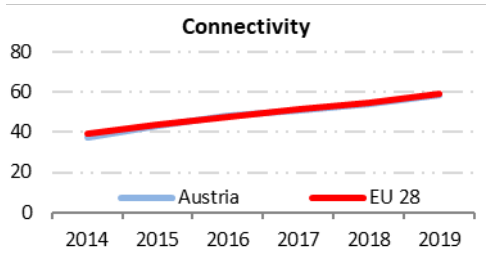




[1] The development of the strategy falls under the responsibility of the Ministry of Digital and Economic Affairs together with the newly established Chief Digital Officer Taskforce. In 2018, a new digital agency was also established to develop digital policies in fivr main areas: digital infrastructure, business, education and society, research, development and innovation, and data protection and data management.

1 Connectivity

1 Connectivity	Austria		EU
	rank	score	score
DESI 2019	**16**	**58.5**	**59.3**
DESI 2018	16	53.7	54.8
DESI 2017	17	50.6	51.2



	Austria				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
1a1 Fixed broadband coverage % households	**98%** 2016	**98%** 2017	**98%** 2018	***11***	**97%** 2018
1a2 Fixed broadband take-up % households	**68%** 2016	**71%** 2017	**69%** 2018	***21***	**77%** 2018
1b1 4G coverage % households (average of operators)	**89%** 2016	**97%** 2017	**98%** 2018	***8***	**94%** 2018
1b2 Mobile broadband take-up Subscriptions per 100 people	**77** 2016	**83** 2017	**87** 2018	***19***	**96** 2018
1b3 5G readiness Assigned spectrum as a % of total harmonised 5G spectrum	**NA**	**NA**	**33%** 2018	***7***	**14%** 2018
1c1 Fast broadband (NGA) coverage % households	**87%** 2016	**90%** 2017	**91%** 2018	***9***	**83%** 2018
1c2 Fast broadband take-up % households	**16%** 2016	**19%** 2017	**23%** 2018	***24***	**41%** 2018
1d1 Ultrafast broadband coverage % households	**NA**	**56%** 2017	**58%** 2018	***20***	**60%** 2018
1d2 Ultrafast broadband take-up % households	**3%** 2016	**5%** 2017	**7%** 2018	***25***	**20%** 2017
1e1 Broadband price index Score (0 to 100)	**91** 2016	**91** 2017	**93** 2018	***4***	**87** 2017

Compared to the 2018 DESI, Austria kept the Connectivity ranking, positioning the country on the 16th place. While its performance in fixed and fast broadband coverage (98 % and 91 % respectively) is above the EU average, its ultrafast coverage is 58 %, 2 percentage points below the EU average, putting the country a low 20th in the ranking. Moreover, both total and ultrafast coverage are static year-on-year and reflect the upgrade of legacy networks; Austria's total FTTP coverage (13 %) is significantly lower than the EU average (29.6 %). At 23 %, Austria has very low take-up of fast broadband, and even lower take-up of ultrafast broadband (7 %), making it 25th in the EU ranking. This low performance could be attributed to the strong trend of substituting mobile for fixed services, due to fierce price-driven competition in the mobile market, both for voice and broadband. This strength is reflected by Austria's high 4G coverage (98 %). Furthermore, broadband prices, both for fixed and for mobile, are far below the EU average, placing Austria fourth in the broadband price index. However, despite the mobile substitution trend, mobile broadband take-up is not very high in Austria (87 subscriptions per 100 people, against an EU average of 96).

Austria's broadband strategy for 2020 is designed to achieve 70 % coverage of ultrafast-broadband (defined as 100 Mbps downstream) in metropolitan areas by 2018, coupled with a 99 % coverage of ultrafast-broadband for all households in Austria by 2020. The Ministry for Transport, Innovation and Technology is currently preparing a new broadband strategy for 2030, which was published for consultation in February 2019. As part of the broadband funding initiative 'Broadband Austria 2020', the Ministry has provided by the end of 2018 €470 million in funds for the roll-out of broadband infrastructure. Additional public tenders making available €400 million in funds are either underway or planned until 2020. This funding programme covers four areas: access, backhaul, connect and ducts. In the context of this initiative, 174 beneficiaries have already received funding in 694 projects. 838,000 residents will benefit directly from these projects in 341 municipalities.

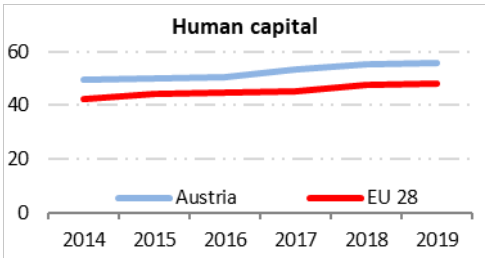
In Austria 47 %[2] of the total 2090 MHz spectrum harmonised at EU level for wireless broadband has been assigned. Austria wants to become a 5G pioneer in the EU and published a 5G strategy in April 2018. This includes a three-phase roadmap whose final objective is to have nationwide 5G availability by 2025. Implementation of the strategy has started, including an amendment to the Telecommunications Act at the end of 2018. All operators are on board and committed to implementing 5G swiftly; they are already taking preparatory action, and intend to start the 5G roll-out as soon as the frequencies have been allocated. The auction of the 3.4-3.8 GHz band ended on 5 March 2019 and enabled the acquisition of large blocks of spectrum facilitating the provision of gigabit 5G services at reasonable prices (€6 cents/MHz/pop). The assignment of the 700 MHz band is scheduled for one year later, while a public consultation for the 26 GHz band will be carried out in the coming months.

Austria is characterised by top mobile coverage, but scores far below the EU average for fixed high-speed broadband, mainly due to the high costs of fibre roll-out (lack of ducts) combined with a low retail price levels and a low willingness to pay for higher bandwidths. Austria has strong ambitions to become a pioneer in the roll-out of 5G, and the achievement of this goal is facilitated by the results of the 3.4-3.8 GHz frequency auction which was a very promising start to the implementation of Austria's ambitious 5G strategy. If Austria wants to tackle its low performance in the fixed sector, particularly in very high-speed connectivity, including in rural areas, its new broadband strategy 2030 could play a role creating the right conditions and incentives for more investments in fixed networks.

[2] The auction was concluded in March 2019; the percentage is being calculated. The updated data is expected at the beginning of April 2019.

2 Human capital

2 Human capital	Austria		EU
	rank	score	score
DESI 2019	**8**	**55.7**	**48.0**
DESI 2018	9	55.4	47.6
DESI 2017	9	53.2	45.4



	Austria				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
2a1 At least basic digital skills	**65%**	**67%**	**67%**	***8***	**57%**
% individuals	2016	2017	2017		2017
2a2 Above basic digital skills	**35%**	**36%**	**36%**	***9***	**31%**
% individuals	2016	2017	2017		2017
2a3 At least basic software skills	**69%**	**71%**	**71%**	***7***	**60%**
% individuals	2016	2017	2017		2017
2b1 ICT specialists	**4.0%**	**4.2%**	**4.4%**	***8***	**3.7%**
% total employment	2015	2016	2017		2017
2b2 Female ICT specialists	**1.2%**	**1.5%**	**1.5%**	***10***	**1.4%**
% female employment	2015	2016	2017		2017
2b3 ICT graduates	**4.5%**	**4.0%**	**4.1%**	***12***	**3.5%**
% graduates	2014	2015	2016		2015

In Human capital, Austria ranks 8th among EU countries, above the EU average. 67 % of people in Austria have at least basic digital skills and 36 % exhibit above average digital skills (the EU averages are 57 % and 31 %, respectively). Employment of ICT specialists is also higher (4.4 % in 2017, compared to an EU average of 3.7 %), and has been growing; it rose by 4 percentage points between 2014 and 2017). However graduations fell by 4 percentage points over this period. These divergent trends are contributing to a shortage of ICT specialists on the Austrian labour market[3]. In particular, female talent is being underexploited in the IT sector (only 1.5% of employed women work in this field), although the situation has been improving (+3 pp. between 2014 and 2017).

Digital skills are included in the 'Digital Roadmap Austria', adopted in January 2017. Digital literacy and IT have been on the school curriculum for several years. Their practical implementation is supported by the 'Dig.Komp' framework[4], which sets out the specific skills and competences to be learned and the digi.check[5] which allows students and teachers to assess their digital skills using the framework. The 'eEducation initiative' provides support to the digital development of schools[6].

[3] 43 % of Austrian firms report a lack of IT staff and 74 % fear that the situation will deteriorate further (Österreichische Industriellenvereinigung, 2018).
[4] https://bildung.bmbwf.gv.at/schulen/schule40/digikomp/digikomp.html
[5] https://bildung.bmbwf.gv.at/schulen/schule40/digicheck/digicheck.html
[6] https://bildung.bmbwf.gv.at/schulen/schule40/eeducation/eeducation.html

In primary, the focus is on teaching media design, safe use of the internet and learning technical and analytical skills through play. To support this, education innovation studios were set up in 100 primary schools and universities for the 2017-18 school year [7].

For the 2017-2018 school year, a pilot project[8] was started in 178 secondary schools introducing mandatory lessons in basic digital skills. This programme was extended to all secondary schools nationwide in autumn 2018. The schools themselves decide whether the training is separate or integrated into other lessons. Over a four year period, pupils receive training on: digitisation of the media landscape, information competences, data and media handling, media design, digital communication and social media, security, dealing with technical problems and computational skills.

In mid-2018, the government (Ministry for Education, Science and Research) started working on a new master plan for the digitisation of the education system[9]. Its three key areas consist of systematically including digital matters in the curriculum of all schools, equipping all school sites with suitable digital infrastructure, and improving teachers' digital skills through mandatory training. Work on the master plan started in summer 2018 and should be completed – with the support of other ministries and experts – by summer 2019. It is planned to complete the implementation of the plan by the end of 2023.

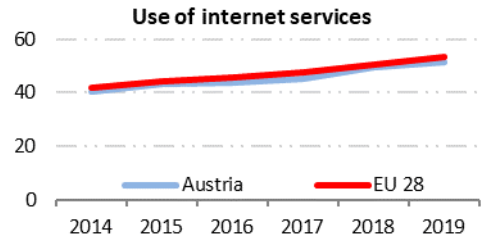
While there is no national Digital Skills and Jobs Coaltion, linked to the European Level initiative, in 2018, 'fit4internet'[10] was launched. This association was founded on the initiative of the Federal Ministry for Digital and Economic Affairs (BMDW) as a hub and platform. In close cooperation with companies, institutions and organisations, the association aims to improve digital skills in Austria and enable society as a whole to participate participate in digitisation. As such, it focuses on improving the digital skills of the over-60s with focused courses (including the 'mobile driving licence'), working people and the young. It also promotes the use of the European Commission's Digital Competence Framework (DigComp Framework). Austria also actively participated in EU Code Week in 2018 recoding 43 activities and 4,600 participants.

Digital skills in Austria are gradually improving and are above the EU average. Nevertheless, Austria still lags behind the top performing countries in this domain. In particular, a growing lack of ICT specialists in the labour market, as demand for these skills is rising, limits firms' capacity to innovate and reap the gains of digitisation. Digital re-skilling of the labour market and providing adequate digital infrastructure in schools[11], in particular primary schools, is of the utmost importance to exploit the full potential of the digital economy.

[7] https://bildung.bmbwf.gv.at/schulen/schule40/dgb/dlpl.html
[8] https://bildung.bmbwf.gv.at/schulen/schule40/dgb/index.html
[9] https://bildung.bmbwf.gv.at/schulen/schule40/index.html
[10] https://www.fit4internet.at/
[11] An infrastructure review by the Ministry of Education in 2016 showed that 35 % of schools lacked WLAN in at least 50 % of their premises (BMB, 2016) with significant differences between different school types.

3 Use of internet services

3 Use of internet services	Austria		EU
	rank	score	score
DESI 2019	**14**	**51.5**	**53.4**
DESI 2018	12	49.5	50.7
DESI 2017	16	45.2	47.8

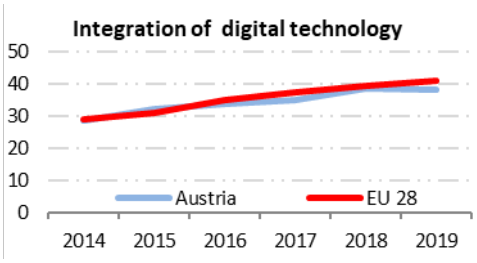


	Austria				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
3a1 People who never used the internet % individuals	**13%** 2016	**10%** 2017	**10%** 2018	***12***	**11%** 2018
3a2 Internet users % individuals	**82%** 2016	**85%** 2017	**85%** 2018	***10***	**83%** 2018
3b1 News % internet users	**66%** 2016	**71%** 2017	**71%** 2017	***23***	**72%** 2017
3b2 Music, videos and games % internet users	**79%** 2016	**79%** 2016	**80%** 2018	***17***	**81%** 2018
3b3 Video on demand % internet users	**14%** 2016	**14%** 2016	**28%** 2018	***10***	**31%** 2018
3b4 Video calls % internet users	**32%** 2016	**42%** 2017	**45%** 2018	***24***	**49%** 2018
3b5 Social networks % internet users	**58%** 2016	**58%** 2017	**61%** 2018	***26***	**65%** 2018
3b6 Professional social networks % internet users	**12%** 2015	**17%** 2017	**17%** 2017	***7***	**15%** 2017
3b7 Doing an online course % internet users	**5%** 2016	**5%** 2017	**5%** 2017	***20***	**9%** 2017
3b8 Online consultations and voting % internet users	**9%** 2015	**8%** 2017	**8%** 2017	***16***	**10%** 2017
3c1 Banking % internet users	**63%** 2016	**65%** 2017	**67%** 2018	***14***	**64%** 2018
3c2 Shopping % internet users	**68%** 2016	**70%** 2017	**69%** 2018	***11***	**69%** 2018
3c3 Selling online % internet users	**13%** 2016	**15%** 2017	**16%** 2018	***17***	**23%** 2018

Use of internet services in Austria is broadly comparable with the EU average. 85 % of people in Austria use the internet on a regular basis (at least once a week) and the numbers who have never used the internet have fallen to 10 % (- 3 percentage points between 2016 and 2018). People in Austria engage in a variety of online activities. The most popular of which are downloading music, videos and games (80 %), reading the news (71 %) and shopping (69 %). Use of video calls has also become more popular in recent years (+13 percentage points between 2016 and 2018 to 45 %). However, it remains below the EU average (49 %). Only 16 % of internet users sell online, in comparision to an EU average of 23 %.

4 Integration of digital technology

4 Integration of digital technology	Austria		EU
	rank	score	score
DESI 2019	**19**	**38.2**	**41.1**
DESI 2018	15	38.5	39.6
DESI 2017	18	35.0	37.6



	Austria				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
4a1 Electronic information sharing	**41%**	**40%**	**40%**	***7***	**34%**
% enterprises	2015	2017	2017		2017
4a2 Social media	**19%**	**21%**	**21%**	***11***	**21%**
% enterprises	2016	2017	2017		2017
4a3 Big data	**NA**	**NA**	**6%**	***26***	**12%**
% enterprises	2016	2016	2018		2018
4a4 Cloud	**10%**	**11%**	**11%**	***23***	**18%**
% enterprises	2016	2017	2018		2018
4b1 SMEs selling online	**15%**	**16%**	**13%**	***18***	**17%**
% SMEs	2016	2017	2018		2018
4b2 e-Commerce turnover	**6%**	**6%**	**7%**	***22***	**10%**
% SME turnover	2016	2017	2018		2018
4b3 Selling online cross-border	**10%**	**14%**	**14%**	***2***	**8%**
% SMEs	2015	2017	2017		2017

In Integration of digital technology by businesses, Austria ranks 19th among EU countries, scoring somewhat below the EU average. Austrian enterprises perform relatively well in terms of electronic information sharing (40 %, compared to an EU average of 34 %) and use of social media stands at the EU average (21 % for both). By contrast, on uptake of big data (6 %, compared to an EU aver of 12 %) and cloud services (11 %, compared to an EU average of 18 %) they lag behind. In addition, SMEs in Austria are not taking advantage of the opportunities offered by e-commerce (13 % sell online, compared to an EU average of 17 %) and, as such, turnover from e-commerce is low (7 %, compared to an EU average of 10 %). By contrast, SMEs in Austria rank highly in terms of selling online cross-border[12].

In EU comparison, Austria's large businesses rank much better than its SMEs in terms of their digital intensity, which increases the risk of an in-country digital divide. 41.7 % of SMEs are considered to have a very low level of digital intensity (using no more than three digital technologies), compared with 7.3 % for large firms[13]. The 'KMU Digital' programme supports Austrian SMEs in their digitisation

[12] This is part helped by the nature and geography of the economy: as a small, open economy neighboured by one or more larger countries having the same language, cross-border e-Commerce is facilitated.
[13] Digital Scoreboard 2019

process (see Highlight 2019). As take-up by SMEs has been considerable, the programme has been extended and more trainers have been trained (400, instead of 200).

In 2019, the Ministry for Digital and Economic Affairs intends to establish a regulatory sandbox for innovative enterprises to support use of artificial intelligence. It is also extending its 'JumpStart' and 'Global Incubator Network' (GIN) programmes to support innovative digitisation of start-ups and attract international top accelerators. Over the period 2016-2019, financial support is being provided to the Austrian Cooperative Research network (€ 2.9 million p.a.) for SME digitisation. Furthermore, a call has been launch by the Austrian Research Promotion Agency to set up digital innovation hubs in Austria. They will provide information and training, and support the implementation of specific digital innovation projects for SMEs. The government is providing funding of € 3 million for the project over the period 2019-2022.

Austria is committed to making progress with new digital technologies and is making strategic investments in them at national level and through EU-coordinated programmes. It is a member of the EuroHPC Joint Undertaking and has signed the Declaration on European Blockchain Partnership and the Declaration on Cooperation on Artificial Intelligence. Austria has also requested support from the EU's Structural Reform Support Programme to improve the structure, expertise and know-how of its Digitisation Agency, including through the development of an action plan on the digitisation of the Austrian SME sector.

The Austrian government is aware of the importance of digitising its SMEs and is putting in place policies and measures focused to achieve its goal of making Austria a technology leader in Europe. It will take more time for the results of many of these measures to materialise.

Highlight 2019: 'KMU DIGITAL' project

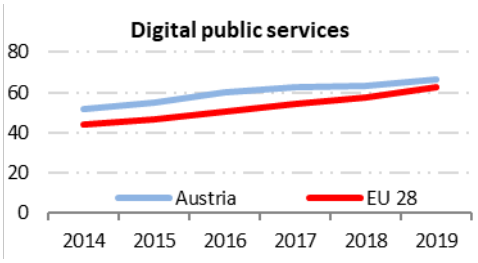
The Austrian Government, together with the Austrian Chamber of Commerce, have successfully launched the 'KMU Digital' project to support SMEs in their digitisation process. The project has 4 main steps:

1. The KMU DIGITAL Online status check: *How digital is my business?* In a first step, firms can check how digital their business is by using an online tool. Almost 10,000 checks were carried out between September 2017 and August 2018.
2. The KMU DIGITAL potential analysis: *What should be changed and how?* As a second step, companies get an individual consultation with a specially trained consultant who carries out a 'potential analysis'. By August 2018, a total of 2,576 such potential analyses had been carried out.
3. The KMU DIGITAL consultation: *How do I start?* In a third step, firms can receive focused consultations responding to specific needs in areas such as e-commerce and social media, IT security, data protection and digitisation of internal processes.
4. The KMU DIGITAL qualification: *digital skills training courses for enterepreneurs and employees*. So far, over 1200 training courses have been provided nation wide.

Through the project, each business can receive up to € 4,000 in financial support.

5 Digital public services

5 Digital public services	Austria		EU
	rank	score	score
DESI 2019	**12**	**66.7**	**62.9**
DESI 2018	11	63.4	57.9
DESI 2017	7	62.9	54.0



	Austria				EU
	DESI 2017	DESI 2018	DESI 2019		DESI 2019
	value	value	value	rank	value
5a1 e-Government users % internet users needing to submit forms	**59%** 2016	**64%** 2017	**68%** 2018	***15***	**64%** 2018
5a2 Pre-filled forms Score (0 to 100)	**72** 2016	**79** 2017	**81** 2018	***6***	**58** 2018
5a3 Online service completion Score (0 to 100)	**97** 2016	**97** 2017	**97** 2018	***4***	**87** 2018
5a4 Digital public services for businesses Score (0 to 100) - including domestic and cross-border	**90** 2016	**84** 2017	**87** 2018	***14***	**85** 2018
5a5 Open data % of maximum score	**NA**	**NA**	**65%** 2018	***16***	**64%** 2018
5b1 e-Health services % individuals	**NA**	**18%** 2017	**18%** 2017	***14***	**18%** 2017
5b2 Medical data exchange % of general practitioners	**NA**	**NA**	**29%** 2018	***14***	**43%** 2018
5b3 e-Prescription % of general practitioners	**NA**	**NA**	**10%** 2018	***24***	**50%** 2018

In Digital public services, Austria ranks 12th among EU countries, above the EU average. Austria performs very well in the availability of public services, which can be completed online, in particular, via mobile devices and by making use of pre-filled online forms. 68 % of Austrian internet users actively engage with e-government services, which is slightly above the EU average. However, Austria only ranks around average in terms of online availability of public services needed to start a business and to conduct regular business operations. It ranks 14th for e-health services, with 18 % of Austrians having used health and care services provided online. e-Prescriptions are used by 10 % of general practitioners, and 29 % exchange medical data.

The online one-stop-shop, which has enabled the start-up of one-man businesses since 2018, is expected to have a positive impact, as one-man companies are the most common businesses in Austria. Austria is also working to extend the one-stop shop to other types of businesses.

For citizens, Austria is expanding the functionalities of the one-stop-shop (*oesterreich.gv.at*) and of the eID to an electronic document. The implementation of the legal right of citizens to electronic communications with public authorities is also on-going. In this context, Austria is increasingly implementing the once-only principle related to notification requirements with national authorities; as well as with public authorities outside of Austria at international level. Austria also intends to extend and increase the use of shared online services such as electronic delivery of public documents.

While Austria is developing an open-data strategy, it continues to rank at around the EU average on open data policies.

Austria continues the rollout of the Electronic Health Record (ELGA), an information system that offers personalised health data to all citizens and eligible health service providers (hospitals, pharmacies, general practitioners, specialists etc.). ELGA has already been rolled out in 5 regions in Austria, and will be available nationwide by the end of 2019. The introduction of a funding programme (*e-Health-Beitrag*), which compensates part of the required investments, had a positive effect on the acceptance of the medical profession. In parallel, works are ongoing to increase the usability and accessibility of ELGA documents and to adapt ELGA infrastructure for usage of future services (e.g. related to primary care and extension of e-card services).

While Austria scores well on providing digital public services, it has lost its place as a top performing country as others have seen faster progress. It is lagging behind in e-health, especially as regards use of e-prescriptions and medical data exchange by general practitioners, but has set itself and is implementing ambitious targets in this area. These plans should lead to a significant improvement in e-health in Austria in the coming years.