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DIGITAL ECONOMY DEVELOPMENT IN SPAIN

Digital technologies and the internet are transforming the global economy with impacts on industry, trade, business models and labour markets. In only a few decades, the world economy has been radically transformed by computers, the internet, smartphones and the sharing economy. Spain's results, in common with many other EU Member States, show a mixed picture with good progress in some areas but less in others. Europe has the capacity to exploit digital opportunities to the full and this could only be achieved together with coherent approaches across Member States, institutions and networks with all participants and actors.

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JEL classification: O32, O52.

1. Introduction

Digital technologies such as big data and cloud technologies along with the «Internet of things» contributed to around a third of GDP growth in the EU over the last decade¹. E-commerce accounts for 10 per cent of retail sales in Europe² and its turnover is increasing at a yearly rate of 15 per cent³.

In the EU single market, only 37 per cent of e-commerce websites allow cross-border shoppers to successfully complete their purchases⁴. In 2016, only around 18 per cent of individuals ordered goods and services online from sellers from other EU countries⁵. In 2015, on average, less than 10 per cent of enterprises completed electronic sales to other EU countries⁶. Notwithstanding this, the figures recently published

in Consumer Conditions Scoreboard of July 2017⁷ report a surge in consumer trust in online purchases, in particular cross-border in Europe⁸. This is to be

¹ VAN WELSUM, D. *et al.* «Unlocking the ICT Growth Potential in Europe: Enabling People and Businesses». The Conference Board for the European Commission, 2013.

² «The European Digital Single Market», JRC IPTS Digital Economy Working Paper, 2015: <https://ec.europa.eu/jrc/sites/default/files/JRC98723.pdf>

³ <https://www.ecommerce-europe.eu/press-item/european-ecommerce-report-2017-released-ecommerce-continues-prosper-europe-markets-grow-different-speeds/>

⁴ «Mystery Shopping Survey on Territorial Restrictions and Geo-blocking in the European Digital Single Market», European Commission, May 2016: http://ec.europa.eu/consumers/consumer_evidence/market_studies/docs/geoblocking_final_report_2016_en.pdf

⁵ Digital Agenda Scoreboard indicators

⁶ [http://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={\"indicator-group\": \"ecommerce\", \"indicator\": \"e_aeseu\", \"breakdown\": \"ent_all_xfin\", \"unit-measure\": \"pc_ent\", \"ref-area\": \[\"BE\", \"BG\", \"CZ\", \"DK\", \"DE\", \"EE\", \"IE\", \"EL\", \"ES\", \"FR\", \"IT\", \"CY\", \"LV\", \"LT\", \"LU\", \"HU\", \"MT\", \"NL\", \"AT\", \"PL\", \"PT\", \"RO\", \"SI\", \"SK\", \"FI\", \"SE\", \"UK\", \"EU27\", \"EU28\", \"HR\", \"IS\", \"NO\"\]}](http://digital-agenda-data.eu/charts/analyse-one-indicator-and-compare-countries#chart={\)

⁷ http://ec.europa.eu/newsroom/just/documentcfm?action=display&doc_id=45983

⁸ The consumer confidence in online shopping has increased by 12.4 per cent for purchases from retailers located in the same country and by 21.1 per cent for purchases from other EU countries.

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welcomed, but at the same time retailers are still hit by significant barriers coming from the differences in national contract law, the differences in national consumer protection rules, and the potentially higher costs for resolving cross-border disputes.

European players only account for about 4 per cent of the market value for online platforms, compared to North America having over 72 per cent of the value and 22 per cent for Asia⁹. These few examples and figures are sobering and, given the importance of platforms to the economy and society, illustrate how much is still to be done to realise the potential of a digital single market in the EU.

The EU's single market should be fit for the digital age —bringing down regulatory barriers and merging from 28 national markets into a single one—. Europe needs a strong and ambitious digital policy to exploit the opportunities and address the challenges brought about by the digital transformation. A fully functioning Digital Single Market (DSM) would enable European businesses, particularly small and medium-sized enterprises (SMEs), to access a market of more than 500.000.000 potential customers¹⁰. A fully functional Digital Single Market could contribute €415 billion per year to our economy and create hundreds of thousands of new jobs¹¹.

The European Commission has placed Digital Single Market as one of the top political priorities and presented the Digital Single Market Strategy¹² in May 2015, followed by initiatives on Digitising European Industry, Internet of Things, European Cloud, Standards and eGovernment¹³ in April 2016.

⁹ EVANS, P. and GAWER, A. (2016). «The Rise of the Platform Enterprise: A Global Survey», http://thecge.net/wp-content/uploads/2016/01/PDF-WEB-Platform-Survey_01_12.pdf

¹⁰ SWD (2015). 100 final: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015SC0100&from=en>

¹¹ European Parliament, «Mapping the Cost of Non-Europe, 2014-2019», April 2015. http://www.europarl.europa.eu/RegData/etudes/STUD/2015/536364/EPRS_STU%282015%29536364_EN.pdf

¹² <http://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:52015DC0192&from=EN.com>

¹³ http://europa.eu/rapid/press-release_IP-16-1407_de.htm

2. The Digital Single Market Strategy

In May 2015 the European Commission adopted the Digital Single Market Strategy for Europe¹⁴ where it presented specific targeted initiatives to address a number of barriers and to enable businesses and citizens to benefit from the digital transformation. The DSM Strategy is based on three pillars explained below.

Pillar I: Better online access for consumers and businesses across Europe

The analysis of the EU Consumer Scoreboard published by the European Commission in September 2015 showed that cross-border e-commerce in Europe continued to have a development lag: a majority of consumers preferred to buy online in their own country (61 per cent) than cross-border (38 per cent). A lack of trust, territorial restrictions and price discrimination were commonly cited as the main obstacles to cross-border electronic commerce¹⁵.

Traders who already operate cross-border, online, say the most serious obstacles are high delivery costs (51 per cent), expensive guarantee and return options (42 per cent), and expensive cross-border dispute settlement procedures (41 per cent). More than half of the companies interviewed said they would either begin, or intensify, their cross-border trade if the same rules were applied to electronic commerce in all EU Member States¹⁶.

To ensure better access for consumers and businesses to digital goods and services across Europe, the DSM Strategy therefore provides several actions. The Commission proposed to strengthen the confidence of consumers and businesses through new simple and effective cross-border conditions

¹⁴ COM (2015). 192 final: <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1447773803386&uri=CELEX%3A52015DC0192>

¹⁵ http://europa.eu/rapid/press-release_IP-15-5684_en.htm

¹⁶ European Commission, Flash Eurobarometer 413, «Companies engaged in online activities», May 2015.

and the improvement of national co-operation¹⁷, to ensure affordable, high-quality package delivery services¹⁸, and to prevent unjustified geoblocking¹⁹. Furthermore, to provide better access to digital content through the creation of modern copyright law²⁰, to review the Satellite and Cable Directive²¹ and by simplifying the value-added tax system in the Member States of the European Union²².

Pillar II: Creating the right conditions and a level playing field for advanced digital networks and innovative services

To achieve this objective, the European Commission focuses on: *i)* the revision of the EU Telecommunications Framework²³; *ii)* the EU Directive on Audiovisual Media Services²⁴; and *iii)* a comprehensive analysis of the role of online platforms on the market (such as search engines, social networks, app stores, etc.)²⁵, including combating illegal content on the internet. In addition, the applicability of the EU General Data Protection Regulation²⁶ from 25 May 2018 will make a significant contribution to the confidence and security of digital services and the handling of personal data within the EU. In addition, the Commission presented several new initiatives in July 2016 to better protect Europe against cyberattack and increase the competitiveness of the European cybersecurity sector²⁷. This included the launch of the

¹⁷ <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-320-EN-F1-1.PDF>

¹⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016PC0285>

¹⁹ <https://ec.europa.eu/digital-single-market/en/news/proposal-regulation-geo-blocking>

²⁰ <https://ec.europa.eu/digital-single-market/en/modernisation-eu-copyright-rules>

²¹ <https://ec.europa.eu/digital-single-market/en/satellite-and-cable-directive>

²² http://europa.eu/rapid/press-release_IP-16-4010_en.htm

²³ <https://ec.europa.eu/digital-single-market/en/telecoms>

²⁴ <https://ec.europa.eu/digital-single-market/en/policies/audiodisvisual-media-services>

²⁵ <https://ec.europa.eu/digital-single-market/en/policies/online-platforms>

²⁶ http://ec.europa.eu/justice/data-protection/reform/files/regulation_oj_en.pdf

²⁷ http://ec.europa.eu/information_society/newsroom/image/document/2017-3/factsheet_cybersecurity_update_january_2017_41543.pdf

first public-private partnership on cybersecurity, which is expected to mobilize €1.8 billion by 2020²⁸.

Pillar III: Maximizing the growth potential of the Digital Economy

In addition to the development of data management and the enhancement of competitiveness through interoperability and standardization, the European Commission is also aiming towards an inclusive digital society. To this end, the European Commission: *i)* will launch initiatives on data ownership, free flow of data (e.g. between cloud providers)²⁹ and a European cloud³⁰; *ii)* establish a plan setting out the priorities for Information and Communications Technology (ICT) standardization and broadening the European interoperability framework for public services³¹; *iii)* through the e-Government Action Plan presented in April 2016, launch an initiative on the «once only» principle and an initiative to link company registers³²; and *iv)* to promote an inclusive digital society by building smarter cities, improving access to e-Government, e-Health services and digital skills will enable a truly digital European society³³.

By September 2017, two years after the launch of the DSM Strategy, the European Commission has delivered 35 separate initiatives, which include 21 legislative proposals that have been presented to the Council and European Parliament.

Thanks to the effective cooperation and committed work of the European Parliament, the European Council and the European Commission, the EU has been quick to achieve important agreements, for example: on 15 June

²⁸ http://europa.eu/rapid/press-release_IP-16-2321_de.htm

²⁹ <https://ec.europa.eu/digital-single-market/en/policies/building-european-data-economy>

³⁰ <https://ec.europa.eu/digital-single-market/en/%20european-cloud-initiative>

³¹ http://europa.eu/rapid/press-release_IP-16-1962_de.htm

³² <https://ec.europa.eu/digital-single-market/en/news/communication-eu-egovernment-action-plan-2016-2020-accelerating-digital-transformation>

³³ <https://ec.europa.eu/digital-single-market/en/policies/creating-digital-society>

2017 roaming charges ended for all European travellers within the EU; from early 2018 citizens who travel within the EU will have access to the films, the music, the video games or the e-books they have subscribed to at home; on the release of the 700 MHz band for the development of 5G and new online services; on the WiFi4EU initiative which will provide free public WiFi hotspots in local communities across the EU, and on the implementation of the Marrakesh Treaty, which facilitates access to published works for persons who are blind, visually impaired, or otherwise print-disabled.

The Digital Single Market offers opportunities going beyond economic activities. Enhanced use of digital technologies can improve citizens' access to information and culture, and can promote open government, equality and non-discrimination, provided our citizens are equipped with sufficient digital skills. It can create new opportunities for citizens' engagement in wider society, including democratic participation, and for better public services, information exchange and national and cross-border cooperation.

3. The DSM Strategy mid-term review

In 2017 the Commission took stock of the progress made, called on co-legislators to swiftly act on all proposals already presented, and outlined where further actions were needed to ensure a fully functioning European Digital Single Market. The Communication on the mid-term review on the implementation of the Digital Single Market Strategy³⁴ was published on 10 May 2017.

Taking into account the rapid development of digital innovation, the DSM mid-term review set out the agenda for the policy measures to be taken up in the Commission's current mandate, including legislation to ensure a fair, open and secure digital environment — particularly with regard to online platforms, cybersecurity and data economy based on free flow of data—.

In addition, the mid-term review also put forward non-legislative measures to manage the digital transformation of our society and economy, for example: digital skills; ensuring a thriving startup scene; modernising public services; and digitising industry.

A particular focus was given to the field of digital health and care, where the Commission will focus on a set of measures to unlock the potential of digital technologies to improve people's health (treatment, diagnosis and prevention of diseases) and address systemic challenges for health and care systems.

The mid-term review sends a very clear signal on the importance of increasing investment in digital technologies and infrastructures. This is especially the case for those projects where the scope and scale cannot be achieved by individual countries alone, for example on high performance computing and connected mobility. High Performance Computing is critical for the digitisation of industry and the data economy. Without it, there is a risk that data produced in Europe is processed, and thus value is extracted from it, elsewhere. Connected mobility can only succeed if we create trans-European corridors where vehicles benefit from continuous high-speed internet connectivity.

Europe has great potential to innovate. Internationally, to be successful, achieving a fully functioning Digital Single Market can become Europe's main asset in the global digital economy and society. Economic diplomacy can play an important role and promoting a digital agenda for development can allow developing countries to grow. Succeeding at home will mean that we will become a regulatory example to be followed by third countries, exporting our regulatory model and European values worldwide.

4. Measuring the progress made

We need to know how the implementation of digital reforms is progressing to be able to take further targeted actions. For this reason, a monitoring framework for

³⁴ COM (2017). 228 final: <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1496330315823&uri=CELEX:52017DC0228>

the digital economy built around an interactive process with Member States and key stakeholders allows us to monitor progress over time and enables a better analysis of the evolution of the digital economy in Europe. The aim of the process is to be a «critical friend» to assist Member States with the prioritisation and delivery of national structural reforms, while focusing on the quality and implementation of their policies.

National policies offer an enabling environment for cross-border activities. For example, accessing online content through portability requirements will not work if the capacity of telecom networks in other countries is insufficient. It is vital that all Member States invest in their digital infrastructure to enable the economy and society underpinning a well-functioning DSM.

The Commission bases this monitoring system on the Digital Economy and Society Index (DESI)³⁵ and the Europe's Digital Progress Report (EDPR)³⁶.

The Digital Economy and Society Index, our main analytical tool, is based on data from Eurostat and various other studies. Launched in February 2015, it measures the progress of EU Member States towards a digital economy and society by bringing together a set of relevant indicators on Europe's current digital policy. These indicators are grouped in five principal policy areas:

- connectivity;
- human capital/digital skills;
- use of internet;
- integration of digital technology; and
- digital public services.

The Europe's Digital Progress Report consists of individual country report fiches³⁷ and accompanies the DSM mid-term review. It provides an in-depth assessment of how the EU and Member States are

progressing in their digital development and identifies potential steps to help improve national performance.

5. The Spanish digital economy

Spain's results, in common with many other Member States, show a mixed picture with good progress in some areas but less in others.

The over-arching picture, taking into account all indicators (Chart 1), is that Spain ranks 14th out of the 28 EU Member States in the European Commission 2017 Digital Economy and Society Index³⁸ (Table 1). By comparison with 2016, the good news is that Spain has improved its score in all areas with the exception of Human Capital where it scored lower than last year despite its solid growth in Science, Technology and Mathematics (STEM) graduates. Its performance is especially noteworthy in Digital Public Services, although Spain made most progress in the Integration of Digital Technology dimension (Chart 2). Although Spanish public and private sectors are quickly progressing with the integration of digital technologies, in general, some indicators seem to point to a weak demand on the user side with lower levels of growth on digital skills that hamper development in the Human Capital dimension (Chart 3). Spain belongs to the medium performance cluster of countries³⁹.

Connectivity

Digital infrastructure in Europe, especially high-capacity broadband, is the cornerstone of a successful Digital Single Market. It is crucial for fostering growth and jobs, and for offering European citizens, enterprises and public administrations the possibility of providing and accessing new online services and content, irrespective of the user's location.

³⁵ DESI: <https://ec.europa.eu/digital-single-market/en/desi>

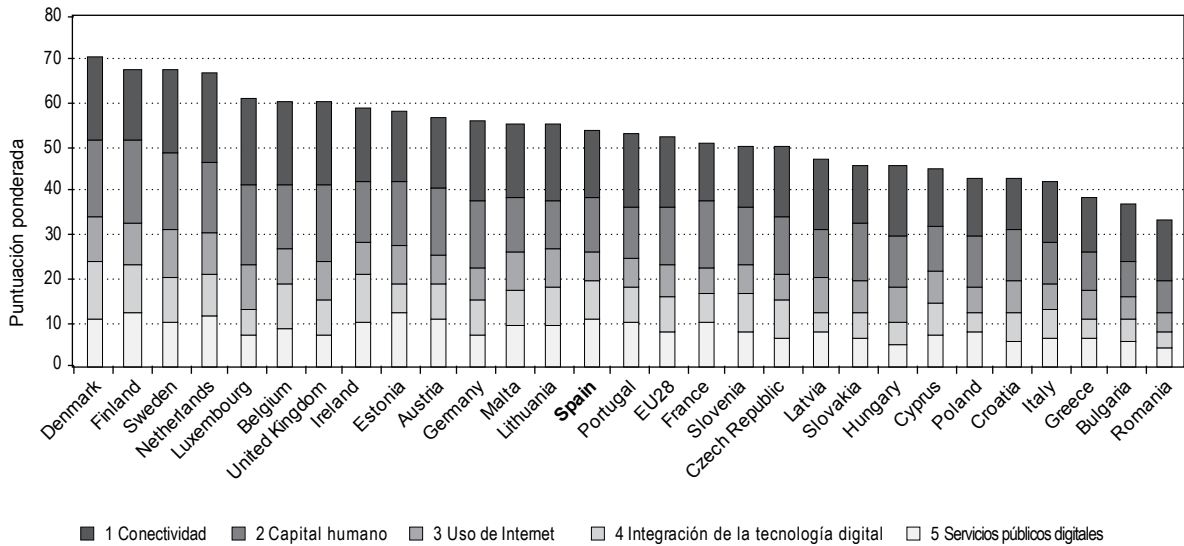
³⁶ EDPR: <https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017>

³⁷ <https://ec.europa.eu/digital-single-market/en/progress-country>

³⁸ DESI: <https://ec.europa.eu/digital-single-market/en/scoreboard/spain>

³⁹ Medium performing countries are Latvia, Czech Republic, Slovenia, France, Portugal, Spain, Lithuania, Malta, Germany and Austria.

CHART 1
DIGITAL ECONOMY AND SOCIETY INDEX 2017 RANKING



SOURCE: European Commission, Digital Scoreboard.

TABLE 1

DIGITAL ECONOMY AND SOCIETY INDEX

	Spain		Cluster	EU
	rank	score	score	score
DESI 2017	14	0.54	0.54	0.52
DESI 2016	15	0.51	0.51	0.49

SOURCE: European Commission, Digital Scoreboard.

Next generation broadband continues to increase in⁴⁰ the EU and by mid-2016 was available to 75.9 per cent of EU households (Chart 4). VDSL

⁴⁰ The DESI 2017 was re-calculated for all countries to reflect slight changes in the choice of indicators and corrections to the underlying indicator data. As a result, country scores and rankings may have changed from the previous publication. For further information please consult the DESI methodological note at <https://ec.europa.eu/digital-single-market/en/desi>

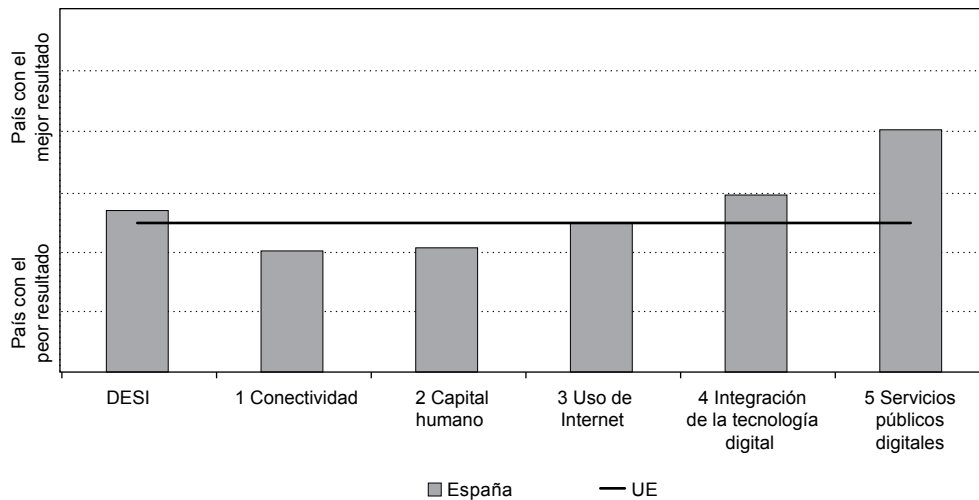
(very-high-bit-rate digital subscriber line) continues to be the leading technology providing this new generation access, followed by DOCSIS 3.0 cable, but the number of EU households served by fibre networks has also increased substantially and now reaches 23.7 per cent of all households⁴¹. From mid-2015 to mid-2016, Spain was one of the countries with a higher increase in FTTP (fiber-to-the-premises) coverage which reached 62.8 per cent of households.

Rural broadband coverage remains considerably lower than national coverage across EU Member States. While 92.6 per cent of rural EU households were covered by at least one broadband technology in mid-2016, still less than 40 per cent of EU households had access to next generation services (Chart 5). In

⁴¹ European Commission Services (2017). European Digital progress Report 2017 (<https://ec.europa.eu/digital-single-market/en/news/europes-digital-progress-report-2017>) and «Broadband Coverage in Europe 2016. Mapping progress towards the coverage objectives of the Digital Agenda».

CHART 2

DESI 2017 - RELATIVE PERFORMANCE BY DIMENSION



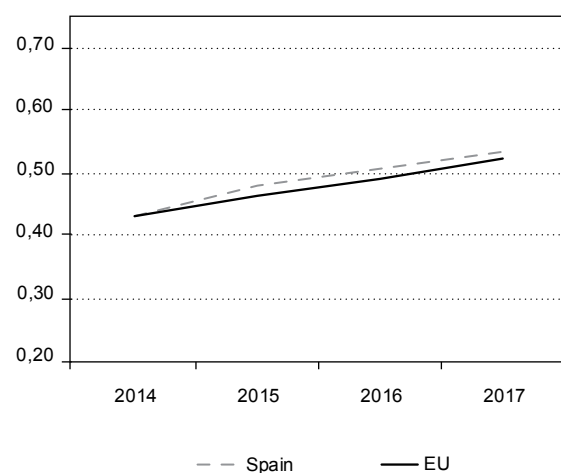
SOURCE: EDPR 2017 – Integration of Digital Technology.

addition, substantial differences remain also between Member States and Regions. Spain performs particularly well in terms of fixed NGA (next-generation access) coverage. Currently, 81 per cent of households have access to fast broadband networks capable of providing at least 30 Mbps, although with significant differences between regions and between urban and rural areas. Worryingly, Spanish rural NGA coverage continued to fall behind the EU average due to slower pace of NGA deployment in rural areas which reached 27.7 per cent of rural households, 12.1 percentage points behind the EU average of 39.2 per cent.

Mobile broadband and fixed broadband take-up ratios (71 per cent and 86 per cent respectively) are the two main sources of improvement in the Spanish DESI (with increase of 2 per cent and 6 per cent respectively), although fixed broadband take-up still remains below the EU average at 74 per cent. This said, subscriptions to fast broadband have progressed significantly (from 29

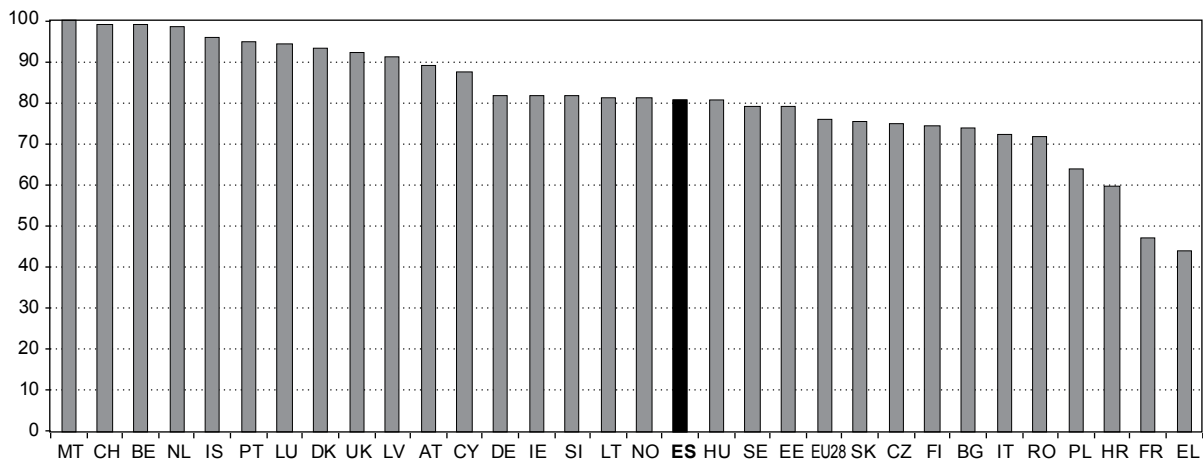
CHART 3

DESI - EVOLUTION OVER TIME



SOURCE: Digital Economy and Society Index (DESI) 2017.

CHART 4
OVERALL NGA COVERAGE BY COUNTRY, 2016
 (%)



SOURCE: Broadband Coverage in Europe, 2016, by IHS Markit and Point Topic for the European Commission, 2017.

per cent to 49 per cent), well above the EU average of 37 per cent.

Stand-alone prices for fixed broadband remain among the highest in Europe (2.7 per cent of income compared to 1.2 per cent for EU). While the cost of stand-alone prices increased with 0.3 per cent during the last year, it should be noted that the bundling of broadband with mobile and pay TV services, a major trend in the Spanish market, makes assessment more complex. In terms of mobile services provided via spectrum, Spain ranks relatively low (20th) in terms of 4G coverage and spectrum harmonization (13th).

The connectivity objectives of the Digital Agenda for Spain (DAS) and its implementation plan for telecommunications and high-speed networks are to be updated in the context of the forthcoming review of the DAS and its plans. The updated objectives should take into account the needs for 2025 in line with the EU «Gigabit Society» Strategy which was adopted in September 2016. The differences in NGA deployment between regions and between urban and rural areas in Spain have been

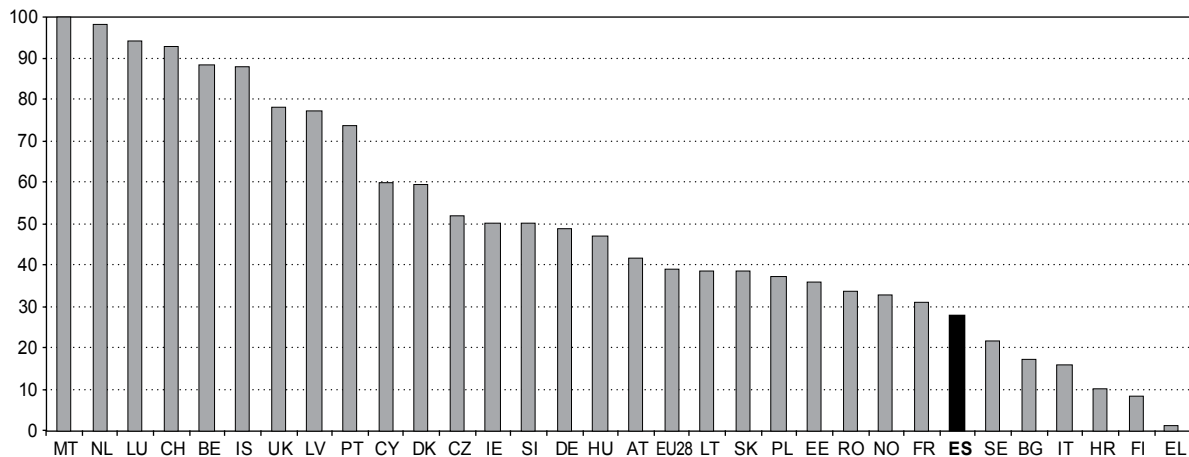
addressed through a number of measures, including the allocation of public aid for NGA extension, but should continue to be a priority for the coming years.

Based on the relatively well deployed fibre networks, Spain would be well positioned to deliver further important policy innovations to enable all Spanish citizens to benefit from the digital economy. However, in the context of ultrafast broadband technology, Spain should tackle the inter-related broadband pricing and take-up issues, keeping an eye on the evolution of the convergent bundling trend, the issue of rural connectivity and spectrum.

European Commission’s action

While all connectivity improvement are welcome, and no one underestimates the costs and effort involved in achieving them, we must keep in mind that in the next few years gigabit connectivity will mean that 30 Mbps connections would not be enough to run the new services that will be provided.

CHART 5
OVERALL NGA COVERAGE BY COUNTRY, RURAL AREAS, 2016
(%)



SOURCE: Broadband Coverage in Europe 2016. A study by IHS Markit and Point Topic for the European Commission, 2017.

Despite the efforts still needed to achieve the 2020 objectives of the Digital Agenda for Europe (100 per cent of households with access to at least 30 Mbps and 50 per cent households subscribing to 100 Mbps), the European Commission has proposed in its Strategy on Connectivity for a European Gigabit Society⁴² (September 2016), to complement the 2020 targets set out in the Digital Agenda for Europe with three new targets for 2025.

The first of the new 2025 targets is to provide gigabit connectivity for all main socio-economic drivers such as schools, transport hubs and main providers of public services as well as digitally intensive enterprises. In addition to the obvious benefits, this should help bring this very high speed connectivity to new areas. The second objective aims to improve mobile connectivity by 2025 through the provision of uninterrupted 5G coverage in all urban areas and major terrestrial transport paths. This is necessary for such new services as connected cars. Last

but not least, by 2025, all European households, rural or urban, should have access to internet connectivity offering a download speed of at least 100 Mbps, upgradable to gigabit speed, to ensure that no European is left behind.

For the time being only a few Member States are close to reaching the EU targets by 2020. These broadband targets will only be achieved if all Member States commit to them and set out a fully operationalised plan. All Member States now have a broadband strategy but these strategies differ substantially in their content and focus (from demand side measures, supply side measures, regulatory and organizational measures to transparency measures)⁴³. The European Commission has called on Member States to review progress in their National Broadband Plans and update them by the end of 2017 for a time horizon of 2025. This is vital, because without the infrastructure to provide gigabit and

⁴² <https://ec.europa.eu/digital-single-market/en/policies/improving-connectivity-and-access>

⁴³ See the 2017 Study on National Broadband Plans in the EU-28: connectivity, targets and measures <https://ec.europa.eu/digital-single-market/en/news/study-national-broadband-plans-eu-28-connectivity-targets-and-measures>

ubiquitous 5G connectivity, industry will not be able to digitise and competitiveness will suffer.

The Commission will continue working with national and regional administrations accelerating the transfer of best practice and the flow of information about relevant EU initiatives, notably through the network of Broadband Competence Offices⁴⁴ set up in the first half of 2017.

On the regulatory front, broadband roll-out will be supported by new measures proposed in the European Electronic Communications Code to foster competitive investments in high capacity networks, notably providing incentives to co-investment in very high-capacity networks. This should facilitate the participation of smaller players in investment projects thanks to the pooling of costs and reduction of scale barriers, and make the investment case more predictable for «first movers» who take the risk to invest in networks in less profitable areas such as less densely populated and remote areas.

In addition, broadband deployment in underserved areas is consistently supported through the EU cohesion policies. For example, in the 2014-2020 programming period out of the €21.4 billion of European Structural and Investment Funds available for digital, around €6 billion (€439 million in Spain⁴⁵) is planned to finance high speed broadband roll-out and other digital infrastructure, with a particular focus on rural and peripheral areas.

More information about EU initiatives in the field of broadband is provided regularly through the Broadband Europe Newsletter (http://ec.europa.eu/newsroom/dae/subscription-quick-generic-form-fullpage.cfm?service_id=178) and the dedicated space in the European Commission website (<https://ec.europa.eu/digital-single-market/en/broadband-europe>).

⁴⁴ <https://ec.europa.eu/digital-single-market/en/broadband-competence-offices>

⁴⁵ See for more detailed information the Open Data Portal for the European Structural Investment Funds (<https://cohesiondata.ec.europa.eu/>) and the ICT Monitoring Tool for the Smart Specialisation Platform set up by the European Commission's Joint Research Centre (<http://s3platform.jrc.ec.europa.eu/ict-monitoring>)

Human Capital

Here, Spain ranks 16th among EU countries and below the EU average. Despite an increasing number of Spanish citizens going online, basic and advanced digital skills levels remain below the EU average. Only around half of individuals between 16 and 74 years old have basic digital skills (56 per cent in the EU) and ICT specialists represent a lower share of the workforce (2.4 per cent compared to 3.5 per cent in the EU).

Increasing the number of ICT specialists and re-skilling the labour force is of the utmost importance for Spain as it is for many other European countries. Spain has recognised this and put in place a set of measures.

In the area of skills, Spain launched several initiatives: *i)* the Ministry of Education, Culture and Sports (MECD) in collaboration with the Social Security authority launched an «Employability and Employment of Spanish Graduates Map» as a tool to match supply and demand of university graduates to the labour market, crossing data registration with Social Security records⁴⁶; *ii)* a recent Survey of Labour Access of University Graduates (EILU) was published, analysing the university and job transition process⁴⁷; *iii)* Digital Skills and Competence Framework based on the Digital Culture Plan, have been launched regarding teachers' digital competences⁴⁸; *iv)* promotion of massive open online courses (MOOCs) and innovative teaching methods in higher education; *v)* Erasmus+ to promote student-centred learning and soft skills⁴⁹; *vi)* the Spanish National Coalition for Digital Skills and Jobs finally became operational in July 2017⁵⁰.

⁴⁶ Inserción laboral de los egresados universitarios. La perspectiva de la afiliación a la Seguridad Social.

⁴⁷ INE (December 2015) —Encuesta de inserción de los titulados universitarios.

⁴⁸ Established in cooperation with JRC in 2012 (<http://educalab.es/intef/digcomp/digcompteach>)

⁴⁹ *Inter alia*, communication, leadership and active citizenship.

⁵⁰ The Spanish National Coalition will be coordinated by ICT industry association AMETIC through the Information Technology Foundation.

Integration of Digital Technology

Spain has made good progress on the Integration of Digital Technology by businesses over the last year. Spanish enterprises are increasingly taking advantage of the possibilities offered by online commerce. 19 per cent of Spanish SMEs sell online (above the 17 per cent of the EU average) and more and more SMEs are actively selling online (19 per cent with a 9.4 per cent of their turnover coming from the online segment). Furthermore, one quarter of SMEs use e-Invoicing, significantly above EU average of 18 per cent.

Spain has put in place Industry 4.0 initiatives at national and regional level, such as: *Industria Conectada 4.0*⁵¹, aiming to digitise and enhance the competitiveness of Spain's industrial sector, promoting digitisation among SMEs, ICT companies and innovative clusters; *Basque Industry 4.0*; *Tecnalia*⁵².

The *Industria Conectada 4.0* initiative (announced in 2015), driven by the General Secretariat of Industry and SMEs, and the Secretary of State for Information Society and Digital Agenda, also involves the main industrial players, and experts from tech companies, research and civil society. The initiative promotes digitisation among SMEs with a budget of €97.8 million focused on credit loans for projects aimed at *i)* innovations in organisation and processes or *ii)* industrial research. Additionally, €68 million (loans and direct aid) for ICT companies and €10 million for innovative clusters were allocated.

Regarding the business sector, the internationalisation of innovative firms remains an area of concern. «Empresa Nacional de Innovación» finances SMEs' internationalization process⁵³ through a competitive programme. There will be projects, based on innovative, viable, profitable and proven business models facing global and competitive markets. Further policy

guidance within this strategic area is expected with the new Digital Agenda 4.0 for 2017-2020.

Digital Public Services

The Digital Public Services dimension measures the digitisation of public services, focusing on eGovernment. It focuses on efficiency gains for the Public Administration, citizens and businesses alike as well as to the delivery of better services to the citizen.

Spain performs well here and ranks 6th among EU countries, although with a slightly increased score over last year's. Furthermore, Spain scores the highest in Open Data and it is one of the EU countries with the highest online interaction between citizens and public authorities.

In Spain, the 40 per cent of Spanish online users actively access eGovernment services. However, other Member States are progressing fast, and this year Spain ranks lower than in 2016 in the indicators concerning pre-filled and completion eGovernment information. These two indicators are the re-use of information across administrations to make life easier for citizens (Pre-filled Forms indicator) and the sophistication of services (Online Service Completion indicator), in which Spain now ranks 10th and 11th, respectively.

Despite Spain's decentralised structure, with central, regional and local government entities, posing challenges to establishing coherent and nationwide eGovernment services, the Digital Transformation Plan for the General Administration and Public Agencies (ICT Strategy 2015-2020) with two new legal instruments is now progressing, delivering a global strategic framework for the transition to full eAdministration by 2018. Full implementation of this strategic plan, together with the legal instruments, could lead the way to significant improvements in Digital Public Administration.

6. Final remarks

In November 2016, following the Spanish elections in June, the new Government set up the Ministry of Energy,

⁵¹ Industria conectada 4.0. <http://www.industriaconectada40.gob.es/Paginas/Index.aspx>

⁵² OECD Science, Technology and Innovation Outlook 2016.

⁵³ OECD Science, Technology and Innovation Outlook 2016.

Tourism and Digital Agenda⁵⁴. The Ministry is tasked with the development of the Spanish Digital Agenda, together with the implementation of government policy on energy, tourism, telecommunications and the information society. We look forward to the expected updated version of the Digital Agenda⁵⁵ with more ambitious targets than the ones included in the current version and measures to address the full release of the socio-economic potential of fibre networks and 5G.

Europe has the capacity to exploit digital opportunities to the full and this could only be achieved together with coherent approaches across Member States, institutions and networks with all participants and actors. Strong interaction between stakeholders, Member States, digital ecosystems and the European level is needed as the only way to ensure that the policy debate draws effectively on the opportunities opened up by digital and in particular their positive impact on growth and society.

⁵⁴ <http://www.minetad.gob.es/en-US/Paginas/index.aspx>

⁵⁵ Digital Agenda for Spain: <http://www.agendadigital.gob.es/digital-agenda/Documents/digital-agenda-for-spain.pdf>