2030 DIGITAL DECADE

Spain's strategic roadmap

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Section 1: Analysis of the state of play of digital transformation

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1.1 State of play of digital transformation

In July 2020, the Government of Spain approved the Digital Spain Agenda, **one of the main pillars of the new economic policy agenda to boost the modernisation of Spain.** This Agenda identified the digital transformation of the economy and society as a key lever to reinforce social cohesion and increase productivity and economic growth, based on developing the digital skills of all citizens; reducing digital divides between groups and between territories; ensuring the protection of fundamental rights in the digital world; helping companies in their digitalisation processes; promoting entrepreneurship; boosting research and development of advanced digital technologies; and modernising public administration.

The digital transformation process accelerated exponentially as a result of the pandemic. Good telecommunications infrastructures and the efforts of an entire country enabled citizens, companies and the administration to maintain their activities by transferring work, personal relationships, entertainment, and more, to the digital world. Profound changes occurred in the operation of companies; in labour relations; in the delivery of public services such as education, health or social services; in consumer habits and in personal relations. These structural changes demonstrated the need of adopting a strategic approach towards digital transformation to guarantee a positive and lasting economic and societal impact.

In the European Union, the response to this need was articulated through the Digital Decade proposal made by the European Commission. In Spain, the response was articulated in the Digital Spain Agenda, approved by the Government in July 2020 and updated in July 2022. This Agenda directs the process of change by providing a clear roadmap and activating, through public-private collaboration, the three levers of the country's transformation:

1. Investing in cutting-edge infrastructure (from broadband connectivity and 5G to undersea cables, from cybersecurity to new disruptive technologies and R&D infrastructure).
2. Supporting the digital transformation of the economy (with a special focus on the digitalisation of the administration and SMEs and the integration of artificial intelligence in production processes).
3. Enhancing people's access to the jobs and services of the new digital economy by guaranteeing respect for their rights in the digital world (through digital skills for all citizens, the development of chairs and specialised skills in cutting-edge areas and the approval of a Charter of Digital Rights).

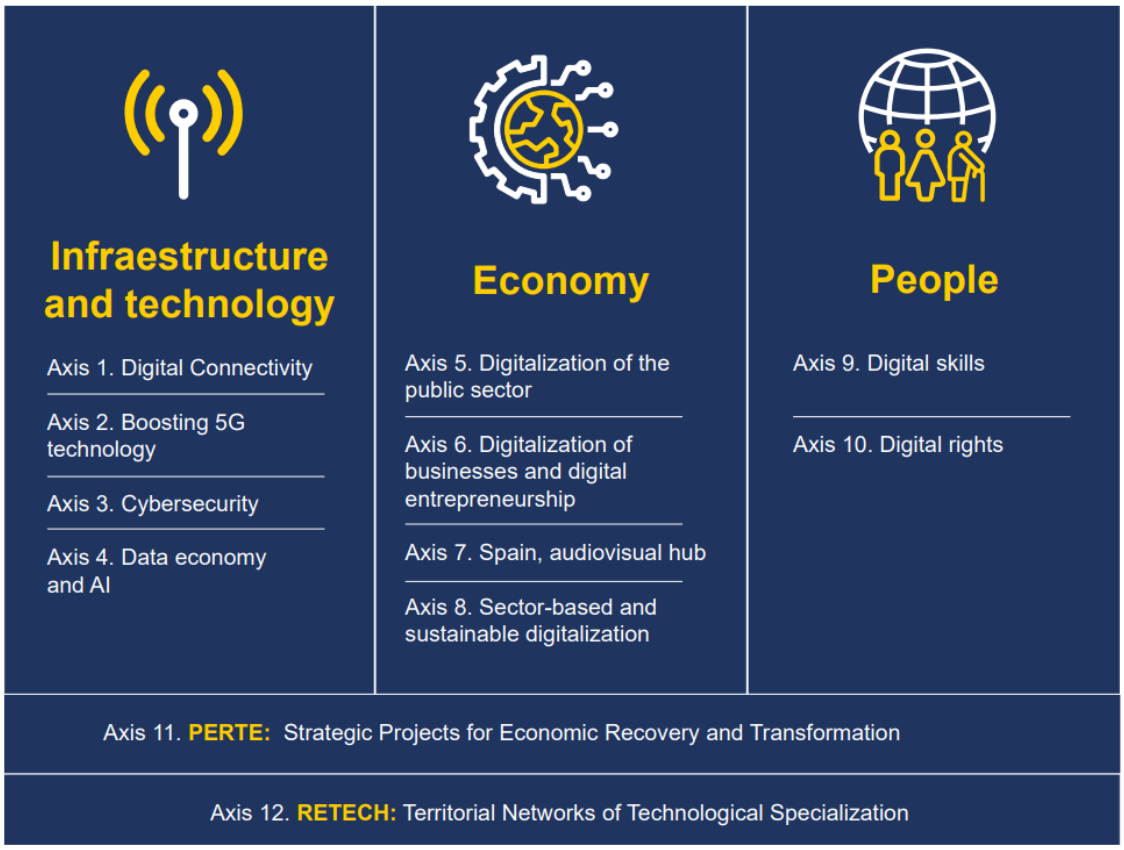


Figure 1. Three levers of the Digital Spain Agenda: Infrastructure and Technology, Economy, People.

As part of the development of the Digital Spain Agenda, eight specific plans, aligned with the Digital Decade **have been published.** These plans detail the processes and State investment programmes with ambitious medium-term objectives to:

- Achieve broadband connectivity in 100% of the territory.
- Position Spain at the forefront of 5G deployment in Europe.
- Strengthen cybersecurity in the public and private sectors.
- Lead the advance of humanistic artificial intelligence in Europe.
- Provide digital skills to 80% of the population.
- Enhance citizens' digital access to government services.
- Boost the digitisation of SMEs and support the creation and scaling up of start-ups.
- Increase audiovisual and video game production by 30%.

The approval of the Recovery Plan in July 2021 and the arrival of the European Next Generation funds accelerated the deployment and increased the ambition of the Digital Spain agenda. Digital Spain, together with the green transition strategy, became one of the main pillars of the Recovery Plan, with 30% of the investments foreseen in the RRP earmarked for boosting digital transformation (exceeding EU's requirements by 10%) and a first phase of public investment in digitalisation of 20 billion euros. As a result, the general state budgets for the period between 2020 and 2023 have seen a sevenfold increase in investment towards digitalisation compared to the previous three-year period. With these unparalleled financial resources, a remarkable administrative management has been carried out, initiating significant aid and investment programs to drive the country's digital transformation.

	Budget (€M)
>>>> Digital Infraestructures and Connectivity Plan	**1.960**
>>>> Strategy for the promotion of 5G Technology	**1.514**
>>>> National Cybersecurity Plan	**1.000**
>>>> National Artificial Intelligence Strategy	**600**
>>>> Plan for the Digitalization of Spain´s Public Administration	**3.165**
>>>> SME Digitalization Plan	**5.000**
>>>> Spain Audiovisual Hub of Europe	**1.600**
>>>> National Plan for Digital Skills	**3.750**

Figure 2. Sectoral plans to boost digital transformation.

In October 2023, the European Commission endorsed Spain's modified recovery and resilience plan, reinforcing Spain's digital ambition. The revised plan includes 18 new measures to the digital transition by fostering the development of advanced technologies, supporting start-ups and investing in research and development (R&D). This updated plan includes substantial investments in the entire value chain of advanced microprocessors, in the scaling up of technological start-ups, in cybersecurity, in enhancing the audio-visual sector, and in furthering the establishment of a Spanish Natural Language Processing environment, which will benefit SMEs. These measures are estimated to additionally contribute EUR 20.7 billion to the digital sector, resulting in a total digital contribution of EUR 40.4 billion for the modified plan.

The Digital Spain Agenda has successfully mobilized an unprecedented collective effort, which has positioned Spain well on track for digital transformation and will continue to propel the country towards the goals and objectives of the Digital Decade. All the reforms and investments implemented over the last three years have demanded dedicated and closely coordinated teamwork from the teams from various ministerial departments, autonomous community councils, city councils, public bodies, technology and consultancy companies, or third-sector entities, among others. As a result, Spain boasts excellent communication infrastructures, a digitised public administration and large companies that lead their sectors, with significant contribution to the productive landscape. We have favourable regulations for foreign investment, a market with legal certainty and a broad system of incentives for research.

The 2023 Report on the state of the Digital Decade reflects the progress achieved through the implementation of the Digital Spain Agenda, positioning Spain as a leading country in digitalisation within the European Union. The report highlights Spain's significant improvements across all dimensions of digital transformation, even though some indicators have not yet captured the impact of the measures being implemented. This progress is particularly impressive considering Spain's initial disadvantaged position two decades ago.

In terms of connectivity and infrastructures, Spain is one of the EU's best performers, notably on fixed very high-capacity network (VHCN) and fibre to the premises (FTTP) coverage while it is a mid-level performer in 5G coverage. The country has now assigned all 5G pioneer bands. Spain, under its

RRP, notably under component 15 “Connectivity”, is implementing relevant measures to achieve the Digital Decade targets of Gigabit and 5G connectivity for everyone, everywhere.

The country is at the forefront of fiber access in the EU, already performing particularly well on fixed very high-capacity network (VHCN) and fibre to the premises (FTTP). **The digital divide between urban and rural areas has been almost eliminated** thanks to different programs, and particularly FTTP has been expanded thanks to the increasing deployment of new access networks in rural areas by both the incumbent and the alternative operators, as well as subsidies, mainly RRF funding, especially in rural and low dense areas. 5G coverage levels may be improved with 700 MHz deployments, that are in progress at this moment. Measures under RRP will contribute to **increase the level of Gigabit and 5G network deployment.**

Long-impact measures and a holistic approach in new infrastructure initiatives (e.g., Microelectronics, Quantum Computing, and Cloud) will contribute to further improve the country’s digital ecosystem. In May 2022, Spain launched an ambitious project (the PERTE Chip) to strengthen the design and production of semiconductors in Spain with initiatives in the whole value chain, including University-industry chairs and scholarships program for students to promote real talent in the semiconductor sector in Spain.

On the target of **at least 10 000 climate-neutral highly secure edge nodes**, Spain is expected to play an important role in the **IPCEI Next Generation Cloud infrastructure and Services (IPCEI-CIS)** and Spain is currently implementing several measures that can contribute **to achieving Europe’s first computer with quantum acceleration by 2025.**

On digital skills, Spain continues to progress in increasing both basic and advanced skills of the population and workforce to support the EU in achieving the Digital Decade targets. Although the most recent data (2021) are not technically comparable to previous years due to methodological changes in how digital skills are measured, a clearly positive trend is observed in the Spain’s recent evolution. In 2021, 64% of the Spanish population already had at least basic digital skills (surpassing the EU average of 54% by 10 points) and 38% had skills beyond the basic level. Additionally, 15% of the Spanish population fell into the low digital skills category level (meaning that they have at least a basic level in 4 of the competence areas measured by Eurostat). Should these individuals consolidate a basic level in the remaining competence area, Spain would automatically meet the European Union's 2030 target of having 80% of its population with basic digital skills.

While the level of digital skills in all sociodemographic groups in Spain surpasses the European Union average, there are still significant differences between these groups that need to be addressed. These discrepancies, similar to those observed in the EU, are most pronounced in terms of age (58 point gap), occupation (49 point gap), and educational level (47 point gap). Smaller disparities are observed based on place of residence (14 point gap) and gender (3 point gap).

The National Digital Skills Plan, launched in 2021 with a total investment of over 3.750 million euros, is actively implementing a wide range of measures aimed at boosting digital skills, thanks to which more than 680,000 individuals have already been trained. These measures include ambitious programmes to, among others, train over 214,000 citizens at risk of digital exclusion, as well as more than 900,000 vulnerable adolescents and children. The digital transformation of education is also underway, facilitated by the #DigEdu Plan and the UniDigital Plan which introduce digital skills from the earliest stages in the curricula with two objectives: to ensure that students finish their education

with the necessary digital skills for life, and to stimulate their vocation in ICT professions. In addition, the Generation D Pact has successfully mobilized the commitment of both public and private entities to promote digital skills and raise public awareness.

Regarding the number of ICT specialists, despite the slight increase in past years, the percentage (4,3%) remains at similar level to the EU average (4,6%), according to latest 2022 data. Overall, Spain is on an upward trajectory, growing in alignment with the path registered in the EU although, as in the rest of the EU, a further acceleration is needed. In 2021, Spain had the highest increase in number of specialists among major European countries, surpassing by +10.9% the EU average of +5.8%. In total, Spain added more than 79,000 ICT specialists, which is an absolute record in the Spanish historical series. Analysing the latest microdata of the National Statistics Institute (INE's) Catalogue of Occupations, we observe that in 2022 the number of "ICT professionals" and "ICT technicians" increased by 71,934, making a growth of 13.6%, the highest in the historical series. This raises the base of this type of professionals to over 600,000 (601,233) and suggests that Spain is on a very positive trend. Furthermore, examining data from Social Security, we see that employment growth compared to the pre-pandemic level is particularly dynamic in high value-added sectors related to ICT specialists, such as IT and Telecommunications. Number of affiliates grew by 22.7% compared to pre-pandemic levels. Similarly Professional, Scientific and Technical Activities showed a growth of 13.3%. Since the end of the pandemic, one in every four new employed people (nearly 272,000 in absolute terms) have joined the workforce in these two highly productive sectors[1]. However, the marketplace is extremely dynamic and companies themselves indicate that they could create almost 15% more jobs if suitable profiles were available[2]. In 2022, 13.4% of all companies in Spain with at least 10 employees recruited or tried to recruit these profiles, exceeding the EU average of 9.5%.

Spain has intensified its efforts to ensure an adequate number of ICT specialists, recognizing the common EU goal of developing, attracting and retaining talent to achieve a successful digital transformation. For that reason, the country is undergoing a profound reform of vocational training, expanding training opportunities with over 200,000 new positions tailored to the needs of the productive sectors, thanks to new specialization courses in areas such as big data, artificial intelligence, robotics, 3D or smart industry. Furthermore, a network of more than 1,500 digital training centres is being deployed through the FP Digital Plan, accompanied by ambitious measures for the upskilling and reskilling of the workforce.

Spain has made significant progress in the number of ICT graduates, **surpassing the European average and closing the gap in response to the growing demand for ICT specialists.** In 2021 (latest available data), Spain had a higher percentage of ICT graduates (4.8%) compared to the EU average (4.2%), with a remarkable growth in recent years. Particularly, there has been a noteworthy expansion of computer science studies at university level. In the academic year 2021-22, there were a total of 352 degrees, 23% more than in the academic year 2015-16. However, this offer is not sufficient to cover the existing demand. In the academic year 2021-22, 9,934 positions were offered for a demand of

[1] https://inclusion.seg-social.es/w/la-seguridad-social-suma-cerca-de-450.000-afiliados-entre-enero-y-junio-de-2023-el-mayor-aumento-en-un-primer-semestre-de-toda-la-serie

[2] Fundacion VASS & Fundacion UAM (2023) Indice de Talento Digital 2022 V Edición

16,902. Since the academic year 2015-16, the number of places offered has grown by 13.9%, while the demand for places has grown by over 43%[3]. A peculiarity of digital specialists in Spain is the significant role that university graduates play in this group, accounting for 82.2% of the total of ICT specialists, a much higher share than the EU average of 64.5%. This is the reason why Spain is undertaking a profound reform of Vocational Education and Training, in order to significantly expand the number of places and the training offer linked to digital professionals.

Although Spain is the third country in the European Union with the highest number of women employed in the ICT sector, there is still a significant gender gap in this area that requires correction. In 2022, only 18% of all digital specialists were women. This figure is slightly below the European Union average (19%) and far from achieving gender parity, which has yet to be achieved in any European country. The gender pay gap is 8.6%, indicating that the aggregate salary of men in technology sectors is 8.6% higher than that of women. Although this difference must continue to be reduced, Spain stands out as the EU member state with the smallest gap (the EU average, difference is 19.3%). Promoting STEM vocations among girls and facilitating women's access to this field are key focus areas that all the measures that Spain is implementing to drive the digital transformation of the education system and the promotion of ICT specialists.

In terms of the digitalisation of businesses, Spain's SMEs' rate with at least a basic level of digital intensity (68%) is slightly below the EU average (69%). Similar to the rest of the European Union, this percentage is growing rapidly, with an increase of more than 8 points in 2022 compared to the previous data from 2021. The percentage of e-commerce turnover (10%) and online cross-border selling (9%) is in line with the EU average, while the number of SMEs selling online is also constantly increasing (reaching 29% in 2022, significantly above the EU average of 19%).

Small and medium-sized enterprises and the self-employed play a key role in the digitalisation of the Spanish economy. Spain boasts nearly 2.9 million SMEs (over 99% of the total) contributing to 58% of total value added and employing more than 10 million people (64% of the entire workforce). Given the large number of SMEs and their significant share in the Spanish economy, reforms and investments aimed at improving the digitalisation of SMEs will have an indirect multiplier impact on other dimensions and targets, as well as on the overall economy of the country.

Spain has launched the Digital Kit initiative to promote scalable, high-impact, public-private partnership mechanisms to accelerate the digitisation of SMEs. This measure has been highlighted by the European Commission as a successful case not only in terms of its design but also its implementation and monitoring, making it the most demanded aid programme in the country's history. The effects derived from this programme are not yet reflected in the indicators for monitoring the digitalisation of companies, since the first call for the programme was launched at the end of the first quarter of 2022. Moreover, additional support programmes have been launched (through Acelera Pyme or the Industria 4.0 initiative) and subsidies are also being granted to SMEs to hire experts in digital transformation through the Agents of Change programme.

[3] Ibid.

The country needs to further accelerate the positive steps it has taken in integrating advanced digital technologies in business to ensure that the Digital Decade goals are met, which is common to the whole EU**.** According to the latest EU comparable data, Spain lags behind the EU average on big data (9% in 2020 vs 14% EU) and cloud (27% in 2021 vs 34% EU) and is in line with the EU average on artificial intelligence (8% in 2021 vs 8% EU). However, looking at more recent data from the National Statistics Institute, we see that Spain has advanced significantly in those three indicators: in 2023 33.2% of Spanish companies analyse big data, while 31.7% use cloud and 9.6% artificial intelligence. Looking at data from the European Investment Bank[4] (which uses a different methodology), the scenario appears even more promising, confirming the positive trend that Spain companies are experiencing in the adoption of advanced digital technologies. According to this data, 80% of Spanish firms report using at least one advanced digital technology, which exceeds the EU average (69%). Compared to the EU average, Spanish firms demonstrate relative strength in implementing Internet of Things, big data, AI and digital platform technologies.

However, significant differences still exist depending on the size of the companies, with the use of advanced technologies being notably higher in large companies (44% for big data, 68% for cloud, 48% for artificial intelligence) compared to medium-sized companies (23% big data, 48% cloud, 22% artificial intelligence) or small companies (13% big data, 29% cloud, 12,6% artificial intelligence). Information and communication companies, the ICT sector, and those engaged in professional, scientific, and technical activities demonstrate a higher level of digitalisation, compared to companies involved in administrative and support service activities, as well as those in the metallurgical and construction sectors, which exhibit the lowest levels of digital transformation.

To address these challenges, ambitious measures are being implemented with the specific aim of promoting the integration of these advanced technologies in the value chains of key productive sectors. As part of the National AI Strategy, the country is launching ambitious initiatives (such as the Integration of AI into value chains programme, or the R&D Missions on AI, with a combined budget of 230 million euro strategic AI take-up by enterprises. On big data, Spain launched in March 2022 its Gaia-X Hub, which complements the work of the European Gaia-X in creating and coordinating the data-sharing ecosystem and helping enterprises solve business problems and create value in the data economy. Regarding cloud, through the IPCEI on Next Generation Cloud Infrastructure and Services (IPCEI-CIS), Spain is expected to actively contribute to increasing cloud uptake among businesses and to invest in new green-cloud infrastructure models (i.e., introducing sustainable operating models fully decarbonised with the use of natural refrigerants). In addition, thanks to the RETECH initiative, projects are being supported in key productive areas that foster the adoption of advanced digital technologies, multiplying the opportunities of each region through national networks that maximize territorial balance and social cohesion. The direct impact of all these measures will be added to the indirect impact that programs such as the Digital Kit will also have on the advanced Digitalisation of companies.

[4] EIB Investment Survey 2022.

Regarding the growth of innovative scale-ups, Spain welcomed four new unicorns in 2022 (increasing from 10 to 14 unicorns in just one year) and is developing a thriving ecosystem for start-ups. According to Dealroom data[5], the Spanish tech ecosystem is now valued at €93B, 3.6 times more since 2018. Furthermore, Spain experienced its second-best year on record for VC investment, with €4B raised in 2022, ranking 6th in Europe and 16th globally for total investment raised in 2022. Early to mid-stage funding has been steadily growing, reaching an all-time high in 2022 of €1.8B, 2.4 times the figure from 2017. Additionally, 2022 witnessed a record number of 11 mega rounds ($100M+), surpassing the total from 2020 and 2021 combined.

Despite the positive trend in terms of the number of scale-ups and their growth, Spain faces the challenge of developing and supporting the local investment ecosystem, especially venture funds. After series A round, 68% of growth funding comes from abroad and as a result, more than 20% of scale ups in the region relocate their headquarters to other markets when they scale. This leads to loss of local wealth and job creation. As proven elsewhere in Europe, local growth funds play an essential role in the maturation of entrepreneurial ecosystems. Alongside this, local corporate support via direct investments (CVCs) or as limited partners in funds is a key differentiator in boosting scale ups' revenue generation and broader international market growth.

To address these challenges and further scale the start-up ecosystem, Spain has passed the Start-up Law and is mobilizing a large volume of public-private investment through initiatives such as the Next-Tech Fund. The Start-up Law, approved in December 2022, aims to boost the number of start-ups in Spain by streamlining requirements and providing considerable tax incentives. For its part, the Nex-Tech Fund, a fund of funds endowed with 4 billion of public investment is leveraging public funding to attract private capital into deep tech start-ups and scale-ups, also contributing to the growth of local venture capital funds. In addition, several other initiatives have been launched in various areas, including the implementation of programs aimed at reducing the gender gap in digital entrepreneurship (such as ENISA Emprendedoras Digitales or The Break).

On the digitalisation of public services, Spain continues to make steady progress, improving its usability, quality, and accessibility for business and citizens. On digital public services for citizens the country scores 86/100 in 2022 (9 points above the EU average of 77), and 91/100 in digital public services for business (7 points above the EU average of 84). Furthermore, Spain also performs well above the EU average on the indicators measuring the number of internet users that engage with e-Government services (84% versus 74%) and the reuse of information across administrations (83 out of 100 versus 68). The country is also making progress in transparency of service delivery, design and personal data, and in user support (achieving scores of up to 73 out of 100 and 87 out of 100, respectively, which are above the EU average - 65 and 84, respectively -).

Under the Plan for the Digitalisation of Spain's Public Administration 2021-2025, which further develops reforms and investments outlined in Spain’s RRP in component 11 ‘Modernisation of Public Administration’, the country is developing and implementing important measures to enhance: 1) the digital transformation of the State administration; 2) high-impact projects for digitalisation and trust

[5] Spain Ecosystem Report 2023.

of the public sector; and 3) the digital transformation and modernisation of the Ministry of Territorial Policy and Public Function as well as the regional and local administrations.

One of the flagship initiatives is the "Mi Carpeta Ciudadana" (My Citizen Folder) application, which facilitates access to citizens and businesses' to a wide range of public services through a single point of entry. The mobile application has already been downloaded by over 1 400 000 individuals and the service has been accessed by 1 900 000 different users. The latest release of "Mi Carpeta Ciudadana" integrates the consultation of the Digital Medical History from the National Health System, incorporating the new service offered by the Ministry of Health, which allows unified visualization of information from different healthcare services provided by the Autonomous Communities.

Spain is succeeding in facilitating citizens' access to their electronic health records, with a score of 83 points on the Digital Decade indicator compared to EU average of 72 points, despite having a highly decentralised healthcare system. The national healthcare records exchange system (HCDSNS) currently provides access to health data to 91% of Spain's population and some regions are already close to 100% coverage. Although access services to electronic health records are provided at regional level, the Ministry of Health does provide harmonisation criteria for national interoperability in three key services: the master patient registry of the NHS (TSI-SNS), the national ePrescription/eDispensation system (RESNS); and the national healthcare records exchange system (HCDSNS). Through the SNS Digital Health Strategy, measures are being deployed to improve governance and ensure interoperability with other EU countries.

Regarding the target of 100% of Union citizens having access to secure electronic identification (eID), **Spain provides one eID means** (Spain's ID card (DNIe), which has been notified at the level of assurance "high" under the *Documento Nacional de Identidad electrónico (DNIe*) scheme. Spain is actively involved via public and private entities in three large-scale pilot projects funded under the Digital Europe Programme, with grants totalling up to EUR 1.6 million. The country is coordinating the pilot projects of the DC4EU consortium, which will test the reference wallet for its use with educational and professional diplomas and social security documents.

Overall, Spain is leading a humanistic digital transition, **ensuring that the principles, values and rights that form the basis of our social life and create the mutual trust that underpinnings our democracy are also the basis of digital interactions**. In this regard, the Charter of Digital Rights, approved in July 2021, constitutes the roadmap to guide this humanist digitisation, and a reference guiding similar reflection processes at European and global levels. With the Charter published, Spain is promoting its dissemination and incorporation into regulatory instruments that facilitate its application in the different spheres of society, consolidating the rights of Spanish citizens in the digital framework. In line with this commitment to put people at the centre of the digital transformation, Spain has just created the first European AI Supervision Agency (AESIA) and is developing jointly with the European Commission the AI Regulatory Sandbox to define best practices that will serve as a basis for the implementation of the future AI Act. In addition, the Chair in Artificial Intelligence and Democracy has also been created, and numerous other projects and debates have been fostered on the social and political challenges arising from new technologies. In fact, Spain is taking the lead on these issues in international forums such as the OECD and the General Secretariat for Ibero-America, which recently adopted the Ibero-American Charter of Digital Rights.

Over the last year, Spain, in line with the EU, has stepped up action to re-assert its technological leadership and enhance its resilience, taking actions to address strategic dependencies, especially in critical raw materials, semiconductors, cloud and edge computing, and cybersecurity technologies. The addendum to the Recovery Plan will facilitate the allocation of large investments to enhance strategic autonomy by promoting the Semiconductor and Microprocessor Industry (PERTE Chip) and the New Language Economy. The PERTE Chip mechanism, managed by SEPI, is already positioning Spain as a hub for attracting industrial investment in chip design and manufacturing, and will now be endowed with nearly 12 billion euros for the development of the industrial and knowledge ecosystem. In addition, the Addendum will provide €2,157 million for a new Cyber Resilience and Security Instrument, to finance the investments of the National Cybersecurity Plan and facilitate the adaptation of public and private sector capabilities in security, defense, aeronautics and space in an environment of greater geopolitical complexity and growing cyber threats and cyber-attacks. These investments will culminate the work begun last year with the approval of the National Cybersecurity Plan and the new National Security Framework, the deployment of the Cybersecurity Operation Centres of the General State Administration and the promotion of the National Network of SOCs to integrate and coordinate the SOCs of the public sector in order to improve capacity to detect and respond to possible cyber incidents.

Along with the digital transition, the green transition is the other major priority for Spain, to which 40% of the Recovery Plan funds are allocated. Both transitions, green and digital, reinforce each other. A significant part of the actions being implemented to drive the green transition are based on the use of digital technologies, whose contribution to reducing emissions or the deployment of the circular economy will be key. Furthermore, the measures included in Digital Spain respect the principle of not causing significant harm to the environment which, together with the associated climate/environmental labelling, ensure that digitisation is progressing in a sustainable way.

To further boost the process of digital transformation between now and 2030, Spain will extend and strengthen the deployment of the Digital Spain agenda, aiming to be at the forefront of the European Union and providing a substantial contribution towards the targets and objectives of the Digital Decade.

1.2 Challenges faced by Spain and obstacles that hinder progress

Spain faces four main challenges related to the general objectives and digital targets, which are common to the rest of the European Union, as outlined in the Digital Decade report. These challenges have been highlighted to different extents in the Country Specific Recommendations issued under the European Semester Cycles since 2019 and the accompanying Country Reports. The Digital Spain Agenda and the Recovery and Resilience Plan have included an extensive set of mutually reinforcing reforms and investments to be completed by 2026 specifically designed to tackle these challenges. Spain is also joining forces with other Member States on multi-country projects to mobilise a vast response from the private and public sectors.

Regarding the human capital dimension, the main challenge is the shortage of ICT specialists. Despite significant progress in increasing the percentage of ICT specialists in the workforce over the last three years, the presence of this profile remains insufficient in most sectors. Only 17% of companies have ICT specialists on their workforce, a slightly higher percentage than in 2021 (16.4%). The availability of these profiles depends to a large extent on the size of the company, with a greater

presence in companies with 250 or more people (65,9%). The demand for ICT specialists is growing rapidly due to the expanding role of the ICT sector in the Spanish GDP, resulting in unfilled vacancies in the sector[6]. According to data from the National Institute of Statistics (INE), focusing on digital companies, we observe that 61% of companies searching for ICT specialists (2022) had difficulty filling their vacancies[7]. Similar to the rest of the European Union, this problem particularly affects women, who represent only 19% of all digital specialists in Spain. The origin of this gap lies in the minority participation of women in ICT educational pathways. Gender analysis conducted by the Engineering Observatory of Spain[8], concludes that women have an overall presence in engineering in Spain close to 20%, despite constituting more than 55% of the student body in public universities. The field with the lowest women representation is Telecommunications Engineering, with only 12% of female students, followed by Computer Engineering and Industrial Engineering, with 16% and 19% respectively.

To address the lack of ICT Specialists, Spain will continue to enhance collaboration and coordination between the education and business sectors will with the aim of improving the skills and qualifications required in the labour market (as recommended in the 2019 Country Specific Recommendation 2 – for which Spain has shown progress according to the 2023 Commission assessment). To this end, the technological hub for vocational training has been established involving large IT companies. Work is also underway with the private sector in the upskill and reskill of workforce, in particular, in advanced and emerging technologies. Moreover, efforts to encourage more students (especially women) in STEM careers will continue. Transformations in vocational training will also continue through the FP Digital Plan and opportunities for upskilling and reskilling will be ensured for everyone.

Regarding the digital transformation of business, the key challenge for both Spain & the EU is fostering the adoption of advanced technologies among SMEs (as in the 2023 and 2022 European Semester Country Reports). Specifically, the greatest effort in Spain, as throughout the EU, is to encourage in the adoption of artificial intelligence. According to the latest data from 2022 only 12% of businesses, have implemented an AI technology, far from the 75% target. Current trends indicate that Spain will fall short of fulfilling the 75% target, despite a significant increase of 4.1% compared to 2021 data. As for Big Data, the latest available data from 2022 show that 15% of enterprises are using this technology, the majority of them being large enterprises (44%), followed by medium (23%) and small sized ones (13%). The cloud is the technology with the highest adoption rate, being used by 32% of companies, with significant differences also between large (69%), medium (48%) and small companies (28%).

The significant reforms and investments that are being put in place to boost the digitalisation of businesses (notably the Digital Kit) will also have a significant impact on the adoption of advanced

[6] Digitales (2022) estimates the number of vacancies at 120.000, in the study “Radiografía de las vacantes en el sector tecnológico 2022”, see https://www.digitales.es/ wp-content/uploads/2022/06/informeEmpleo2022_280622.pdf.
Infojobs (2022) estimate the number at 200.000, in the study “Estado del mercado laboral en España.”

[7] Calculations made by the VASS Foundation and the Foundation of the Autonomous University of Madrid in the V Edition of the study "Employability and Digital Talent" (2022) based on the INE measurement, considering the CNAE sectors CNAE Sectors 261-264, 268, 465, 582, 61, 6201, 6202, 6203, 6209, 631 and 951

[8] Observatorio de la Ingeniería en España (2022) 1er Estudio del Observatorio de la Ingeniería de España 2022

technologies. However, as these measures are currently being implemented, their impact is expected to be fully visible in the indicators by 2026, when Spain's trajectory is expected to exponentially accelerate.

Related to the SMEs adoption of advanced technologies there is the challenge of fostering research and innovation (as identified in the 2019 and 2020 Country Specific Recommendations). Spain has a low investment in R&D, both overall (1.4% of GDP compared to 2.2% in the EU) and in the private sector (0.8% of GDP compared to 1.5% in the EU), as well as a low level of R&D intensity in the ICT sector, which constrains the productivity and competitiveness of Spanish firms. However, as pointed out by the European Commission in the Digital Decade report, Spain is taking significant steps to boost innovation, being expected to play an important role in the development and deployment of innovative cloud solutions through the IPCEI Next Generation Cloud Infrastructure and Services (IPCEI-CIS), as well as in increasing semiconductor production in Europe with the implementation of the PERTE Chip, in the development of the EU's first quantum-accelerated computer through the Quantum Spain programme, or in the advancement of artificial intelligence through the AI R&D Missions programme.

On the other hand, despite being an overall top-performer in digital connectivity (with strong coverage in fixed very high-capacity networks and fiber to the premises), Spain has had an average performance in 5G coverage so far due to delays in auctioning pioneer 5G bands. To address this challenge, Spain has recently accelerated the deployment of 5G in rural areas through the UNICO 5G Redes Backhaul and UNICO 5G Redes Activas programs, as it will be detailed below.

1.3 Strengths and assets to be leveraged

Spain indeed has several strengths that position it well in the digital transformation process. It has excellent communication infrastructures, a digitalised public administration and large companies that are leaders in their sectors, with strong leverage on the productive fabric. It has also developed favourable regulations for foreign investment, a market with legal certainty and an extensive system of incentives for research and development, knowledge transfer and job creation. Spain also has extraordinary professionals in the telecommunications and information technology (ICT) sector, a lot of creative talent, an active start-up ecosystem and an open, flexible, and dynamic society, with a very attractive living environment for teleworking.

The progress achieved since the adoption of the Digital Spain agenda in July 2020 is a clear demonstration of the positive impact of having a clear vision and significant public investment to mobilize private investment and achieve tangible change. Thanks to the Recovery Plan and the Digital Spain agenda, public investment has already increased seven-fold and major research and technological innovation projects have been announced. From programmes for the development of electric and connected vehicles to the establishment in different Spanish cities of R&D centres in key areas for the future, such as the internet of things or cybersecurity, as well as investment projects in chip design. The funding available for start-ups has also been multiplied, indicating a growing and dynamic start-up ecosystem and is beginning to build a strong foundation for technology companies in Spain. Spain has experienced significant progress in the EU's Digitalisation index and there is a substantial progress in quality job creation within the technology and science sectors.

As of 2023, the Spanish "digitalised economy", defined as all economic activity based on digital goods and services, has reached 22.6% of total GDP in 2022, 0.6% higher than in 2020 (22.0%), and almost 4% higher than in 2019 (18.7%), according to estimations by Adigital & BCG[9]. The estimated direct impact of the digital economy on GDP in 2022 is 11.2%, 0.3% higher than in 2020 and 2.2% higher than in 2019. Between 2020 and 2022 the value of digitalisation of the economy had a cumulative growth of 19%, rising from €117 billion to €140 billion. The exponential growth of digitalisation is a factor that generates business competitiveness and opportunities for citizens.

Spain has an advanced telecommunications infrastructure, ranking above the European average on all main indicators according to the Digital Decade Country Report 2023, with rapid and steady growth in recent years. This infrastructure includes extensive coverage of high-speed mobile networks and a growing expansion of fibre optics (Spain being the 3rd OECD country in terms of fibre optic adoption), which puts it in an advantageous position compared to other European countries. In addition, ambitious programmes are being implemented in this area, including the UNICO Rural Demand programme, a pioneer programme in Europe as it is the first time that aid has been granted to promote the contracting of high-speed 100 Mbps connection (provided by satellite technology as result of the competitive process followed to award the program) at an affordable price, with coverage for 100% of the population in those areas where there is no access to fixed networks of at least 50 Mbps (thus eliminating the digital divide). These strengths have contributed to making Spain an attractive market for investment in telecommunications and a benchmark in access to digital connectivity, which in turn drives digital transformation in various sectors of the economy.

Spanish society is increasingly recognizing the significance of digital skills (especially in the wake of the covid-19 pandemic), with a greater commitment from public administrations, private companies and civil society, resulting in a wider range of training and opportunities for upskilling and reskilling. Movements such as the Generation D Pact are helping to raise awareness and harmonise public and private sector initiatives to boost digital skills, as well as the formal recognition of learning achievements, in order to provide even greater incentives for citizens to continue training. In addition, specially targeted and tailored programmes for vulnerable groups are expected to bridge the digital divide also in this area making a significant contribution to the goals of the Digital Decade. As previously mentioned, important reforms are also being undertaken in the education sector that will serve to boost training in digital skills from early childhood education, foster STEM vocations in girls and boost the supply of degrees in the ICT sector to increase the number of ICT specialists.

In the business sphere, the ICT sector is rapidly expanding with an increasing number of digital and audio-visual enterprises emerging and expanding. Along with the growing contribution to the GDP of the digital economy, it's worth highlighting that the high and medium-high technology companies' business volume is also increasing (up to 8.8% in 2021 compared to the previous year - latest available data). The strength and growth of the innovative entrepreneurial ecosystem is noteworthy, as more and more actors are joining (not only startups but also other players such as investment vehicles, public administrations with support programmes, training centres with capacity building programmes, etc.)

[9] Adigital & BCG (2023) Economía Digital en España. 3ª Edición.

and territorial hubs. Thanks to this, the start-up entrepreneurship ecosystem in Spain has become one of the leading ecosystems in the European Union according to several specialized reports.

It is also worth mentioning the network of European Digital Innovation Hubs (EDIHs) that is expected to make an important contribution to the EU's collective efforts to reach the Digital Decade targets in the digitalisation of businesses. Spain has 12 EDIHs funded under the Digital Europe program (DEP) and Spain's RRP, and 13 EDIHs labelled with a 'Seal of Excellence' that are funded directly by the country (also under the RRP). These relate to a wide range of technologies and sectors throughout Spain and will, for example, support SMEs in identifying investors; improving digital skills, modelling, and testing; and creating an ecosystem for innovation and networking.

Spain is also at the forefront of e-government and digital public services in the EU, with significant progress in the Digitalisation of government institutions over the past ten years, along with an increase in the number of users of digital public services. The focus is therefore now mainly on improving the usability, quality, accessibility and transparency of public services. Cross-cutting initiatives are being carried out, incorporating disruptive technologies in innovative projects linked to five lines of action: improving citizen services, smart operations, data governance, digital infrastructures and cybersecurity. Through the General Secretariat for Digital Administration (SGAD), the central government offers technological, human and knowledge resources to the ministries so that they can carry out their own digital transformation projects. Currently, 172 digitalisation projects are being carried out in the fields of justice, health, consular digitalisation and social security, among others. Furthermore, support is being provided for the digitalisation of regional governments and local entities.

The advances of the Digital Spain agenda are driving the modernisation of the productive and social fabric of the entire country, fostering public-private collaboration and between the different public administrations to achieve coordinated action to promote digital transformation. The digitisation process of strategic sectors is fostering a business ecosystem of innovation and growth while also embracing a humanist perspective and contributing to environmental sustainability.

Section 2: Spain’s trajectories and target values to contribute to the EU’s digital targets

Section 2: Spain's trajectories and target values to contribute to the EU's digital targets.

This section is dedicated to the summarization of our national target values, the aim of this targets for 2030 and a trajectory for each of them to help meet each of the digital targets. For a more detailed overview of the trajectories and target values, please see Annex 1.

2.1 Introduction

Spain, in line with the Commission, has maintained and aligned targets to contribute to the EU's digital objectives to achieve 100% of the defined units: gigabit; 5G coverage; digitization of public services for citizens and businesses; eHealth; eID. Additionally, it also maintains those corresponding to the integration of advanced technologies (cloud services; big data and AI) and at least basic digital intensity of SMEs, as well as doubling the number of Unicorns.

On the other hand, Spain is aiming to surpass the EU's digital skills target by setting a higher value (85% vs. EU´s goal of 80%). However, Spain has set a lower value for ICT specialists compared to the EU. The national target is 1.75 million, which would represent 8.6% of total employment in 2022. In contrast the European target is set at 20 million ICT specialists, which, if achieved, would represent 9.8% of total employment in the region.

In addition, no targets are set in cases where there is no available historical data series and a clear trend defined by the Commission: Semiconductors; Edge-nodes; Number of quantum computers; eID.

To this end, national trajectories were estimated by considering the historical time series of the KPIs, where data are available, and the expected impact of the policies, measures and actions outlined in the Spanish roadmap.

2.2 Purpose of the Spanish Digital Decade trajectories

According to Article 7 of the Decision, these national trajectories are intended to achieve the European digital targets. In addition, these trajectories will provide a foundation for the Commission to monitor the progress in achieving the targets.

2.3 Estimation of Spanish trajectories towards 2030

2.3.1 Methodology for estimating the Spanish Digital Decade trajectories.

The methodology for estimating the Spanish digital decade trajectories is based on the one described in the "Commission Communication. Establishment of trajectories foreseen at Union level for the digital objectives".

However, to formulate the trajectories towards the Spain's targets, in addition to historical data (when available), the measures deployed by the country have been considered. Thus, the trajectories for achieving the Spanish targets have been adjusted in some cases to reflect the expected impact of the measures. These include basic digital skills; ICT Specialists; the adoption of digital technologies (except, big data); digital intensity of businesses; number of unicorns and the Digitalisation of public services.

2.3.2 A bird's eye view on the trajectories of the Spain's roadmap

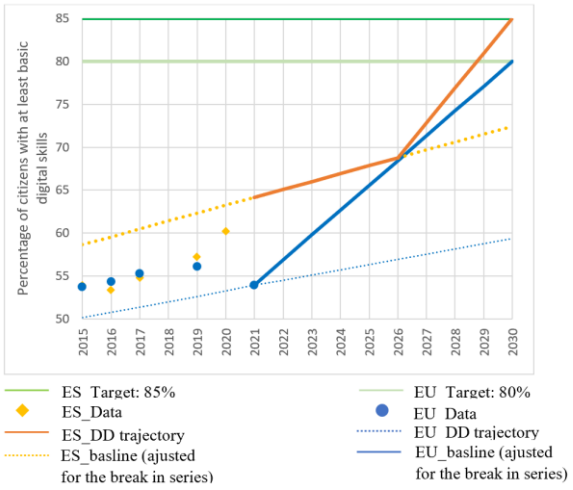
At least basic digital skills

2022 value:

- EU = 54%
- ES = 64%

2030 value:

- Target:
  - EU = 80%
  - **ES = 85%**
- Projected:
  - EU = 59%
  - ES = 72%



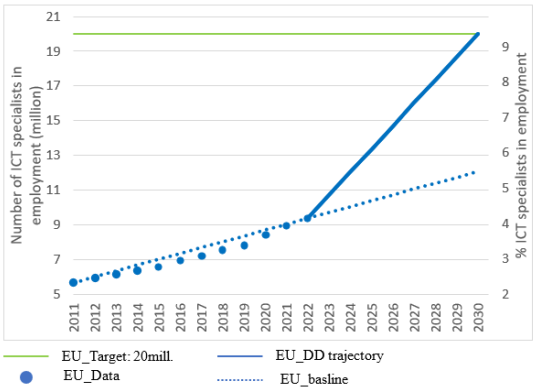
ICT specialists in employment

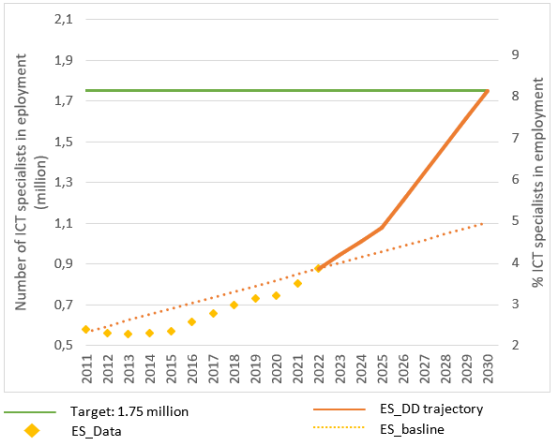
2022 value:

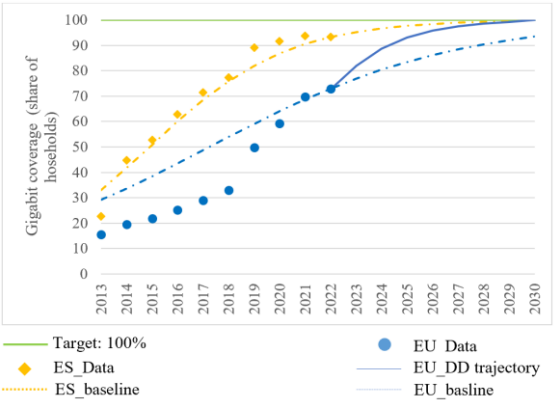
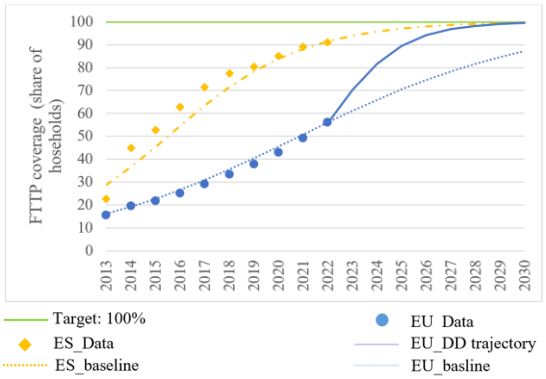
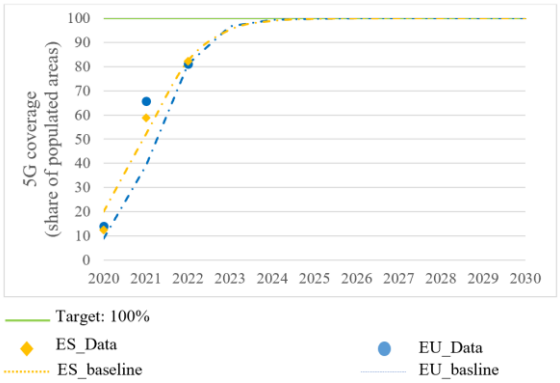
- EU = 9.37 million
- ES = 0.88 million

2030 value:

- Target:
  - EU = 20 million
  - **ES = 1.75 million**
- Projected:
  - EU = 12.0 million
  - ES = 1.1 million





Very High-Capacity Network (gigabit) 2022 value: • EU = 73% • ES = 93% 2030 value: • Target: ○ EU = 100% ○ **ES = 100%** • Projected: ○ EU = 100% ○ ES = 100%	
Fibre To the Premises (FTTP) 2022 value: • EU = 56% • ES = 91% 2030 value: • Target: ○ EU = 100% ○ **ES = 100%** • Projected: ○ EU = 87% ○ ES = 100%	
Overall 5G coverage 2022 value: • EU = 81% • ES = 82% 2030 value: • Target: ○ EU = 100% ○ **ES = 100%** • Projected: ○ EU = 100% ○ ES = 100%	

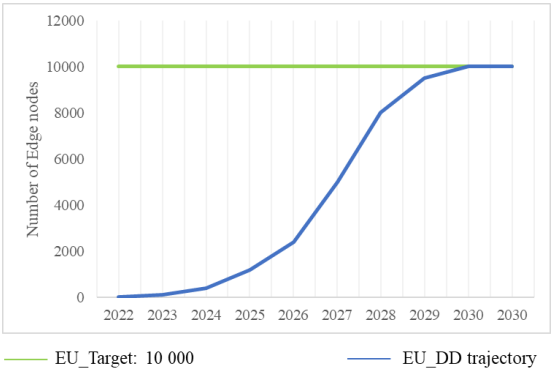
<table>
<tr>
<td>Semiconductors

2022 value:
• EU = approximately 10% of global market
• ES = N/A

2030 value:
• Target:
○ EU = 20%
○ ES = N/A
• Projected:
○ EU = N/A
○ ES = N/A</td>
<td>(EU) N/A

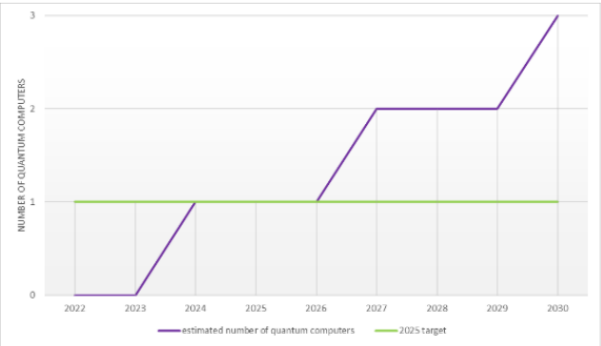
(ES) N/A</td>
</tr>
<tr>
<td rowspan="2">Edge-nodes

2022 value:
• EU = N/A
• ES = N/A

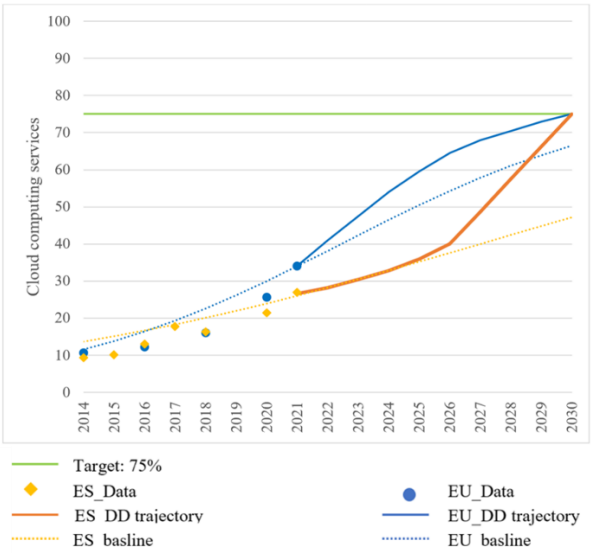
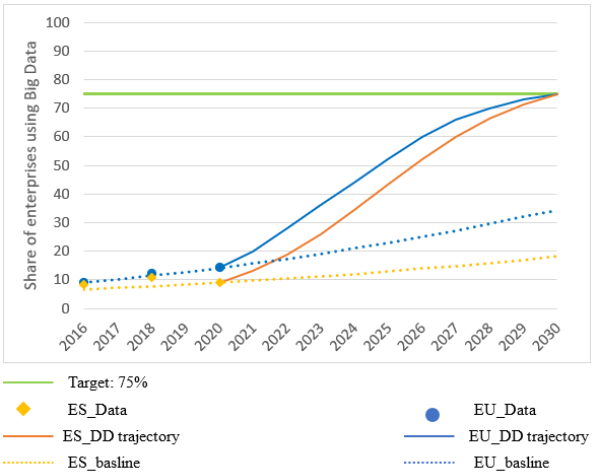
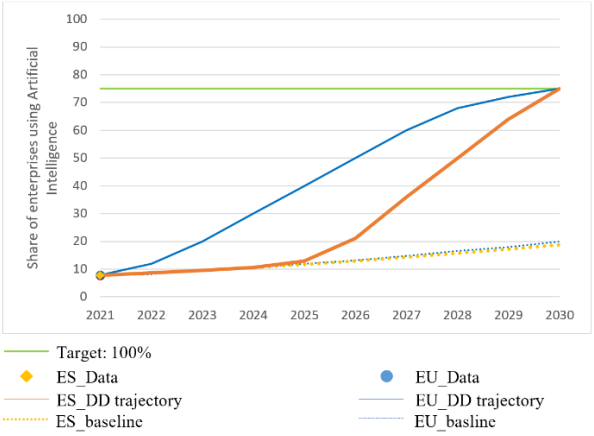
2030 value:
• Target:
○ EU = 10 000
○ ES = N/A
• Projected:
○ EU = N/A
○ ES = N/A</td>
<td> 

EU</td>
</tr>
<tr>
<td>(ES) N/A</td>
</tr>
<tr>
<td rowspan="2">Number of quantum computers

2021 value:
• EU = 0
• ES = 0

2030 value:
• Target:
○ EU = the cutting edge of quantum capabilities
○ ES = N/A
• Projected:
○ EU = 3
○ ES = N/A</td>
<td> 

EU</td>
</tr>
<tr>
<td>(ES) N/A</td>
</tr>
</table>

Take-up of cloud services by businesses 2021 value: • EU = 34% • ES = 27% 2030 value: • Target: ○ EU = 75% ○ **ES = 75%** • Projected: ○ EU = 66% ○ ES = 47%	
Take-up of big data by businesses 2020 value: • EU = 14% • ES = 9% 2030 value: • Target: ○ EU = 75% ○ **ES = 75%** • Projected: ○ EU = 34% ○ ES = 18%	
Take-up of AI by businesses 2021 value: • EU = 8% • ES = 8% 2030 value: • Target: ○ EU = 75% ○ **ES = 75%** • Projected: ○ EU = 20% ○ ES = 19%	

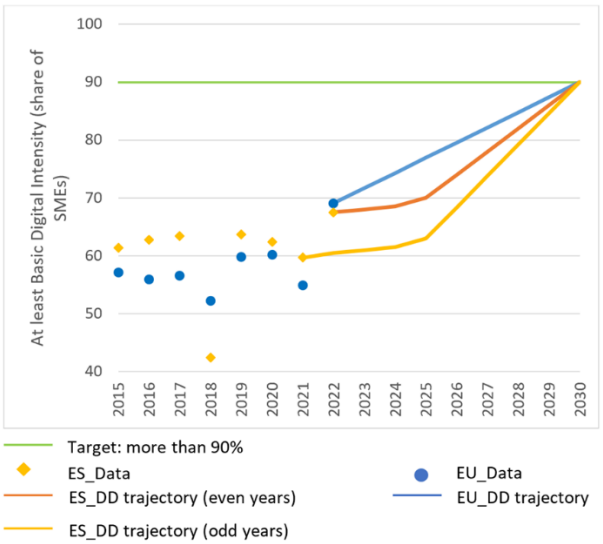
SMEs with at least basic digital intensity

2022 value:

- EU = 69%
- ES = 68%

2030 value:

- Target:
  - EU = 90%
  - **ES = 90%**
- Projected:
  - EU = N/A
  - ES = N/A



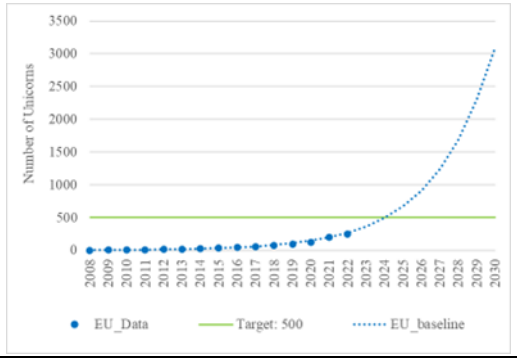
Number of Unicorns

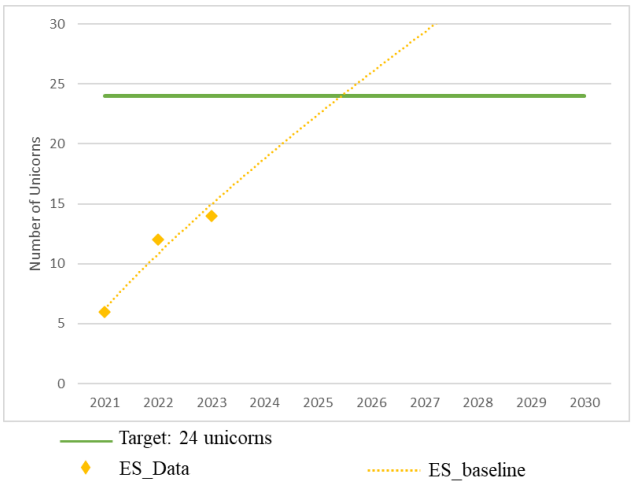
2022 value:

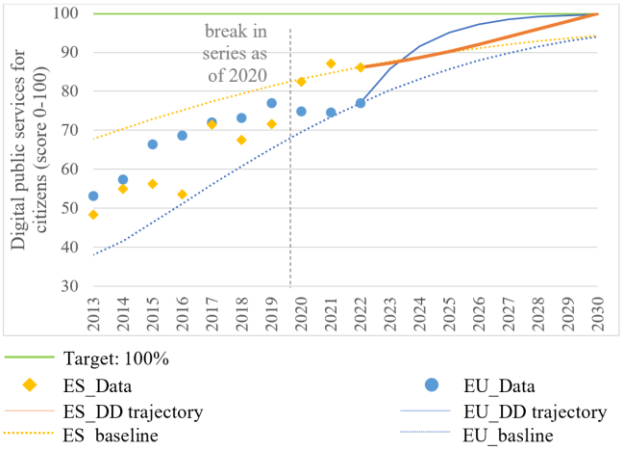
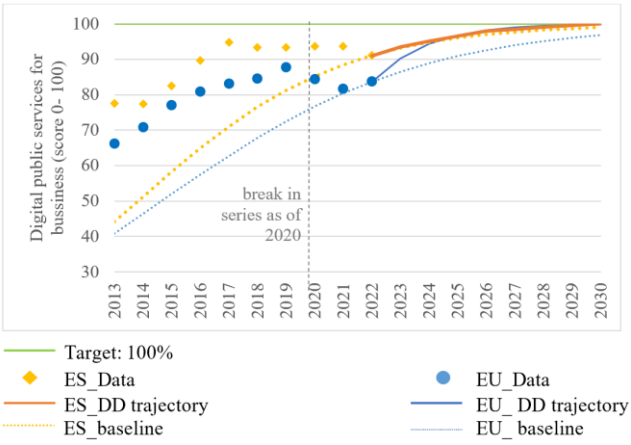
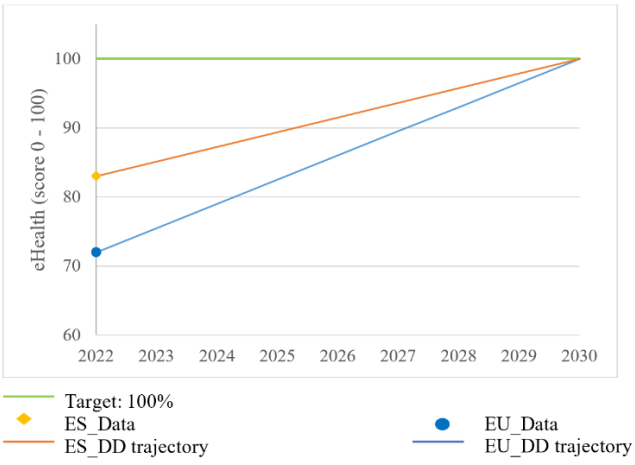
- EU = 249
- ES = 12

2030 value:

- Target:
  - EU = 500
  - **ES = 24**
- Projected:
  - EU = > 500
  - ES = > 24





Digitalisation of public services for citizens 2022 value: • EU = 77/100 • ES = 86/100 2030 value: • Target: ○ EU = 100/100 ○ **ES = 100/100** • Projected: ○ EU = 94/100 ○ ES = 94/100	
Digitalisation of public services for businesses 2022 value: • EU = 84/100 • ES = 91/100 2030 value • Target: ○ EU = 100/100 ○ **ES = 100/100** • Projected: ○ EU = 97/100 ○ EU = 99/100	
eHealth composite indicator on the availability of electronic medical data 2022 value: • EU = 72/100 • ES = 83/100 2030 value: • Target: ○ EU = 100/100 ○ **ES = 100/100** • Projected: ○ EU = N/A ○ ES = N/A	

eID 2023 value: • EU = 21 countries with eID schemes notified • ES = Spain's ID card (DNIe) has been notified at the level of assurance "high" under the Documento Nacional de Identidad electrónico (DNIe) scheme **eWallet** The KPI follows European Digital Identity Framework.	(EU) N/A (ES) N/A

Section 3: Policies, measures and actions to achieve the digital targets

Section 3: Policies, measures and actions to achieve the digital targets

This section presents an overview of the policies, measures and actions implemented by Spain to support the Digital Decade targets. For each target, the overall impact of all relevant measures is provided, including key information: baseline values, overall timetable, total budget allocated, impact on the resolution of specific challenges and estimated total investment needed. In addition, for each target, the point of highest impact of the implemented measures is indicated (‖), from which organic growth is expected to occur. For a detailed overview of each measure see Annex 2.

3.1 General overview of measures per digital target

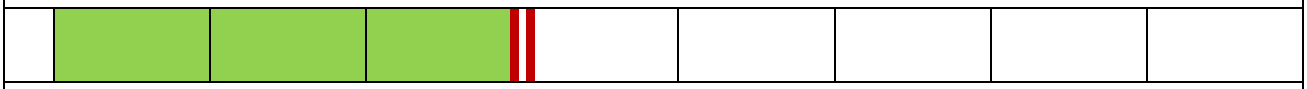
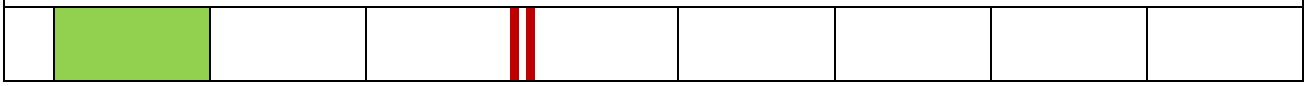
3.1.1 Basic Digital Skills: at least 80 % of those aged 16-74 have at least basic digital skills.

- **Spain baseline value (latest available historical data point):** (2021) 64%.
- **EU baseline value (latest available historical data point):** (2021) 54%.
- **Overall timeline:**

	2023	2024	2025	‖ 2026	2027	2028	2029	2030
Measures that contribute to the target								
Improvement of the basic digital skills of vulnerable groups and those at risk of digital exclusion.								
Basic digital skills for citizens at risk of digital exclusion (Third Sector) – *Digital skills training programmes for over 214,000 citizens at risk of digital exclusion.*								
CODI program - *Digital skills training for over 900,000 vulnerable children and adolescents.*								
State Network of Digital Training Centres – *Inclusive initiative to promote digital literacy and secure online practices among citizens, facilitated by locally established digital training units.*								
Improvement of citizens' digital skills								
Generation D Campaign - *Campaign in partnership with RTVE to promote digital literacy through media outreach and a nationwide bus tour targeting communities with limited digital access.*								

Generation D Portal *– Open participatory platform that provides opportunities and resources for the development and enhancement of digital skills for all its users.*

Challenge Based Learning *- Online learning service that includes the creation and maintenance of a learning management system.*

Digital transformation of education
Plan #DigEdu *- Plan #DigEdu enhances education by improving teachers' digital skills and integrating digital skills into curricula starting in early education.*

Uni-Digital Plan *- The Uni-Digital Plan promotes digitization in higher education by equipping students with advanced skills, fostering digital vocations, and stimulating university-wide digital innovation.*


- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 1 953 million
        - already allocated: EUR 1 289 million
        - planned: EUR 664 million

      Thereof from EU sources: EUR 1 953 million
        - already allocated: EUR 1 289 million
        - planned use: EUR 664 million

The measures put in place by Spain will contribute to closing the digital divide between groups, ensuring that at least 85% of the population has digital skills by 2030. In addition, they can indirectly contribute to tackling the challenge of increasing the number of digital specialists.

To ensure that no one is left behind in the digital transformation process, ambitious measures have been developed specifically targeting groups with lower levels of digital skills, with programs to train more than 200,000 citizens at risk of digital exclusion and 900,000 vulnerable adolescents and children, as well as the implementation of a state network of digital skills training centres to facilitate proximity actions.

Additional measures are being implemented to raise awareness in society about the importance of digital skills (Generation D Campaign) **and generate a movement of commitment to digital skills that also mobilises public, private and third sector entities**,

coordinating efforts to facilitate citizens' access to training initiatives (Generation D Portal and Generation D Pact). In line with this objective of bringing citizens closer to training initiatives, a learning ecosystem will be set up with training for all skill levels and in a multitude of areas.

Finally, education is being digitally transformed from the earliest stages to higher education (Plan #DigEdu and UniDigital Plan). In addition to the provision of digital infrastructures in schools, digital skills are being integrated into the curricula as a cross-cutting element with a dual objective: to ensure students have essential digital skills for life by the time they complete their education, and to bring them closer to ICT professions from an early age to stimulate their vocation and interest pursuing careers in this field.

- Estimated investment gap and possible actions to reach the national target values:

With the aim of continuing to train citizens in digital skills from 2026 onwards, the challenge-based learning platform could remain operational. The Learning Management System of this platform would have maintenance costs of 1.4 million euros per year, which would also serve to keep the learning initiatives up to date. 3.8 million euros per year would also be needed to dynamize learning initiatives after current Recovery Plan funds have finished, beyond August 2026.

In addition, a Certificate of Digital Competences would be deployed in Spain to facilitate formal recognition of learning achievements by employers as well as to harmonise the training offer in digital competences. 2.5 million euros per year would be used to develop and maintain a set of proficiency indicators for Digital Skills in Spain and to setup and maintain the Digital Skills Certificate.

Finally, 1 million euro per year would be used to maintain and evolve the Generation D Portal into a site to host a Spanish Passport of Digital Skills, after current Recovery Plan funds have finished, beyond December 2025.

3.1.2 ICT Specialists: at least 20 million ICT specialists are employed within the Union, while promoting the access of women to this field and increasing the number of ICT graduates.

- **Spain baseline value (latest available historical data point):** (2022) 0.8768 million**;** Share of female ICT specialists = 18%
- **EU baseline value (latest available historical data point):** (2022) 9.37 million; Share of female ICT specialists = 18.9%
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
FP-Digital Plan **-** *The FP-Digital Plan aims to modernize vocational training by enhancing digitization, teacher training, resource availability, data management, transforming training spaces into tech spaces, and supporting digital entrepreneurship.*								
DIGITALIZATE PLUS **-** *Digitalízate Plus offers free, personalized, and advanced digital skills training for workers and SMEs, with course options from digital basics to artificial intelligence, facilitated by tech experts.*								
Chair on AI **-** *The Chair on AI program advances AI research and education, fostering collaboration between universities and companies to drive Spain's tech transition and cultivate skilled professionals. Up to 20 university-business chairs will be funded.*								
SpAIn Talent Hub– *Information hub to attract and retain talent in the artificial intelligence field. The creation of this hub will serve as a nexus for researchers and companies, both Spanish and foreign, providing information on grants, job opportunities, investment potential in Spain, and collaboration possibilities.*								
Haz Project **-** *Advanced digital skills training hub for the audiovisual sector, offering training for both professionals and unemployed individuals in the sector. It aims to enable 40,000 individuals to work as professionals in the audiovisual sector.*								

Hacker Talent - *Program fostering cybersecurity skills and employability through practical, competency-based training to meet the increasing sector demand for professionals. It aims to train more than 11,000 students in technical cybersecurity courses of, at least, 250h.*								

- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 259 million
        - already allocated: EUR 137 million
        - planned: EUR 122 million

      Thereof from EU sources: EUR 259 million
        - already allocated: EUR 137 million
        - planned use: EUR 122 million
    - Private investment: EUR 4 million

The measures implemented by Spain are mainly focused on increasing the number of ICT graduates, **given the high number of unfilled vacancies in the sector**. Therefore, these measures are expected to start showing results from 2026 onwards, when the number of ICT graduates will have increased and the growing demand for ICT specialists will be met. Indirectly, these measures will also have a positive impact on the advanced digitisation of companies and especially SMEs, which often face big challenges in recruiting ICT specialists, hindering their digitisation.

Thanks to the Plan FP Digital, a profound reform is being undertaken in vocational education, increasing the range of qualifications linked to ICT specialists, to increase the number of professionals who choose this educational pathway (important to note that in Spain the number of ICT specialists with a university degree is significantly higher compared to other EU countries). This new training offer is being designed in collaboration with technology companies in the sector through the Technology Hub set up by the Ministry of Education and Vocational Training, with the aim of guaranteeing that the training is closely connected with the demands of the professional reality.

Efforts are also underway through public-private collaboration to boost the number of ICT specialists by improving the training opportunities available to workers and SMEs via the Digitalizate + platform. Additionally, various initiatives are in place to develop and attract talent in specific areas such as the audiovisual sector (through the Haz Project), artificial intelligence (through the Chair on AI) or cybersecurity (through Talento Hacker).

The promotion of STEM vocations among women and the development of female talent is a cross-cutting element in all these measures, with the goal of achieving gender balance among ICT specialists.

- Estimated investment gap and possible actions to reach the national target values:

EUR 120 million that would be allocated additional measures in the field of talent attraction to address the digital professional´s retention and attraction.

3.1.3 Connectivity: secure, resilient, performant and sustainable digital infrastructures, where:

a) all end users at a fixed location are covered by a gigabit network up to the network termination point.

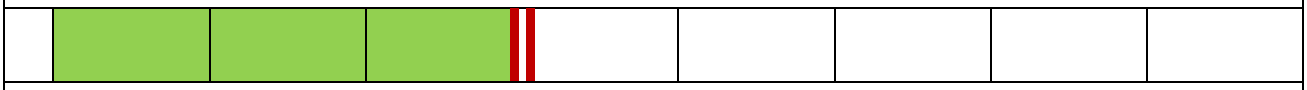
- **Spain baseline value (latest available historical data point):** (2022) 93%
- **EU baseline value (latest available historical data point):** (2022) 73%

b) all populated areas are covered by next-generation wireless highspeed networks with performance at least equivalent to that of 5G, in accordance with the principle of technology neutrality.

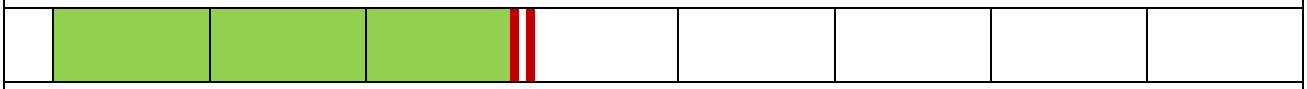
- **National baseline value (latest available historical data point):** (2022) 82%
- **EU baseline value (latest available historical data point):** (2022) 81%
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
UNICO - Banda Ancha (BA) - *The UNICO program aims to expand high-speed broadband, especially in remote areas, building on the PEBA-NGA initiative from 2014. It now targets the last 10% of the population, with a goal of Gigabit connectivity for all by 2030.*								
	■	■	■					
UNICO - BA Interconexión – *The UNICO program aims to universalize digital infrastructure. Its "BA" Interconnection has Terrestrial and Submarine subprograms. The Terrestrial focuses on high-speed broadband via ground fibre optics for defence, dams, and health. The Submarine targets underwater broadband connections, emphasizing cables between Canary Islands and the I3D defense project.*								
	■	■	■	■				
Conectividad Gigabit Motores Socioeconómicos – *The UNICO program boosts digital cohesion. The "Public Services" subprogram enhances broadband in public centres like hospitals, while the "Companies and Businesses" subprogram strengthens connectivity in economic areas, both targeting speeds up to 1 Gbps.*								
	■	■						
FEDER Motores Socioeconómicos – *This measure aims to subsidize socioeconomic drivers so that they can have a broadband connection at more than 1 Gbps in locations that do not have this type of service provided by telecommunications operators.*								
		■	■	■	■	■	■	

Sistema Información para Despliegue BA (IBA)- *The IBA system aids broadband deployment in alignment with European guidelines. It streamlines administrative processes, enhances public coordination, and promotes digital interactions.*



Obligaciones Banda 700 MHz - *This measure aims to promote 5G technology by allocating radio spectrum, notably the 700 MHz band (694 to 790 MHz), for 5G services. Recognized as a European priority for 5G, the band was transitioned from digital terrestrial television and subsequently auctioned for electronic communications use.*



Obligaciones asociadas a la rebaja de tasas - *This measure aims to address the financial challenges faced by operators due to COVID-19's impact on 5G revenue expectations, especially in business and vertical sectors. The pandemic has hindered operators' ability to value their 5G assets, slowed user adoption, and limited industries from leveraging 5G's transformative potential.*

UNICO - 5G Redes Backhaul - *This measure aims to enhance 5G infrastructure through the UNICO program, focusing on the "UNICO 5G Redes - Backhaul" subprogram. It seeks to provide optical fibre backhaul connections to specific mobile broadband sites lacking such connections, which are crucial for 5G services.*

UNICO 5G Redes Activas - *This measure aims to advance 5G in underserved areas through the UNICO "5G Redes Activas" subprogram. It focuses on supplying equipment and infrastructure for 5G Standalone services with edge computing and network slicing features, targeting speeds of 100 Mbps downlink and 5 Mbps uplink in areas with under 10,000 residents lacking sufficient 4G coverage.*

FEDER 5G muy rurales - *This measure aims to support mobile network operators in extending 5G coverage to highly rural areas overlooked in the Recovery Plan framework. These regions lack mobile broadband essential for services like education, health, and public transport. The program also targets completing 5G coverage on transport corridors, primarily in rural zones, where market gaps exist.*

UNICO 5G Redes ADIF - *This measure aims to enhance 5G via the UNICO "5G Redes" subprogram by aiding "ADIF", Spain's rail authority. The goal is to deploy 5G on specific railway lines, like Albacete-Alicante and Barcelona-Figueras, where market failures have left gaps in coverage.*


- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 2 383.2 million
        - already allocated: EUR 1 551.6 million
        - planned: EUR 831.6 million

      Thereof from national sources: EUR 16 million
        - planned: EUR 16 million

      Thereof from EU sources: EUR 2 367,2 million
        - already allocated: EUR 1 551.6 million
        - planned: EUR 815.6 million
    - Private investment: EUR 2.1 billion (estimated)

On Gigabit Connectivity, Spain is at the forefront of fibre access in the EU. Particularly FTTP has been and will continue to be expanded thanks to the programs UNICO Banda Ancha and UNICO BA Interconexion programs. We will achieve the objective with the current measures.

On 5G Connectivity, Spain has had an average performance. However, deployment is being accelerated once the 3.5 GHz band has been rearranged to provide operators with a contiguous block of spectrum; and the rest of the priority bands - especially the 700 MHz band - have been made available to operators. Besides, to address this challenge, Spain will deploy 5G in rural areas without good 4G coverage through the UNICO 5G Redes Backhaul and UNICO 5G Redes Activas programs. The combination of these two programs is expected to allow Spain to achieve 5G coverage of 100% of the population well in advance of 2030.

- Estimated investment gap and possible actions to reach the national target values:

The current planned programs have the ambition to fulfil national targets by themselves. However, unforeseen circumstances may hinder their effectiveness, and further measures may be required – or an adjustment of the planned ones. Moreover, the measurement of the targets may also be adjusted following EU Commission adjustments (especially for 5G) and could mean a reorientation of the efforts of the current programs or the deployment of new ones.

3.1.4 Semiconductors: secure, resilient, performant and sustainable digital infrastructures where the production, in accordance with Union law on environmental sustainability, of cutting-edge semiconductors in the Union is at least 20 % of world production in value.

- **Spain baseline value (latest available historical data point):** N/A
- **EU baseline value (latest available historical data point):** approximately 10% of global market
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
IPCEI Microelectrónica *– This measure aims to bolster the European electronics industry through the IPCEI ME/CT, supported by fourteen Member States including Spain. Focusing on design, supply chain, and semiconductor deployment.*								
UNICO I+D Microprocesadores BSC *– This measure, under the UNICO program, targets microprocessor development at the Barcelona Super Computing Centre. It aims to create two chip prototypes foundational for future European supercomputers.*								
Cátedras Chip *– This measure aims to fund grants in Spain, establishing university-company partnerships for microelectronics research. Given the fragmentation in the Spanish research ecosystem, especially in semiconductors, this initiative seeks to unify efforts and address gaps in priority business areas.*								
Misiones CDTI *– This measure aims for the Centro para el Desarollo Tecnológico y la Innovación (CDTI) to fund R+D projects in two main areas: advanced microelectronic design with a focus on alternative architectures like RISC-V, and bolstering Spain's integrated photonics ecosystem.*								
PERTE Chip *– This measure is a strategic initiative that aims to develop the scientific, design and production capabilities of the microelectronics and semiconductor industry in our country so that an important multiplier effect is generated not only in the technological sectors, but in the whole of the Spanish economy.*								

- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 12 250 million
        - already allocated: EUR 1 120 million
        - planned: EUR 11 130 million

      Thereof from national sources: EUR 250 million
        - planned: EUR 250 million

      Thereof from EU sources: EUR 12 000 million
        - already allocated: EUR 1 120 million
        - planned: EUR 10 880 million
    - Private investment: EUR 35.5 billion (estimated)

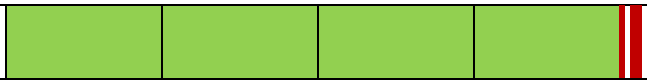
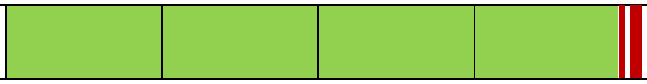
To contribute to the increase of semiconductor production in the European Union, Spain is deploying PERTE Chip – an overarching initiative that will be able to tackle the different challenges Spain may face in the semiconductors sector. It covers the whole value chain including training, design and production measures. This program is complemented by Spanish participation in IPCEI ME/CT and other national programs.

- Estimated investment gap and possible actions to reach the national target values:

The strategic initiative PERTE Chip is extremely ambitious in the amount of funds deployed (more than 12 billion euros) and its breadth across the value chain. As a result, no further measures are expected at this point in time, but an assessment of the effectiveness of the measures within the PERTE Chip will be carried out. If further measures are required to increase the contribution of Spain to the European target, they will be deployed in due time.

3.1.5 Edge-nodes: secure, resilient, performant and sustainable digital infrastructures where at least 10 000 climate-neutral highly secure edge nodes are deployed in the Union, distributed in 18 a way that guarantees access to data services with low latency (i.e., a few milliseconds) wherever businesses are located.

- **Spain baseline value (latest available historical data point):** N/A
- **EU baseline value (latest available historical data point):** N/A
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
IPCEI CIS – *This measure leverages the IPCEI-CIS to enhance the UNICO R&D Cloud program. It emphasizes fostering a multi-vendor cloud-edge ecosystem, bolstering IT security, and advancing the EU's digital capabilities.*								
								
UNICO I+D Cloud – *This measure aims to increase the leadership of Spanish research groups in Cloud computing, promoting digital transformation through research, development and innovation in the field of this technology.*								
								
FEDER Servicio Computacional – *This measure supports the development of Data Centres in Spain's underserved areas for advanced cloud services. These centres will ensure fast connectivity, redundancy, and integration with global cloud standards. While focusing on both new and existing centres.*								
								

- Budget of all the measures that can be attributed to the target:
  - Public investment: EUR 204 million
    - already allocated: EUR 41 million
    - planned: EUR 163 million

    Thereof from national sources: EUR 7 million
    - planned: EUR 7 million

    Thereof from EU sources: EUR 197 million
    - already allocated: EUR 41 million
    - planned: EUR 156 million
  - Private investment: EUR 7 million (estimated)

Spain is currently starting its deployment of edge-nodes, which should be developed mainly by the private sector. To accelerate such deployment, Spain will leverage its participation in the IPCEI Next Generation Cloud infrastructure and Services (IPCEI-CIS). To make sure Spain delivers on the edge-nodes EU-level target, Spain is complementing this IPCEI program with two national programs: the UNICO I+D Cloud and the FEDER servicio computacional – the latter focusing on facilitating deployment where market failures exist.

- Estimated investment gap and possible actions to reach the national target values:

The lack of national (and EU) baseline makes the assessment of the investment gap unfeasible. However, Spain will adjust current programs as needs become clearer, and would eventually deploy additional programs to ensure the achievement of the targets.

3.1.6 Quantum computing: secure, resilient, performant and sustainable digital infrastructures where the Union has, by 2025, its first computer with quantum acceleration, paving the way for the Union to be at the cutting edge of quantum capabilities by 2030.

- **Spain baseline value (latest available historical data point):**
- **EU baseline value (latest available historical data point):**
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
Quantum Spain – *This program promotes and strengthens the national Quantum Computing ecosystem, aiming at creating the first Quantum computing environment in south Europe.*								
								

- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 22 million
        - already allocated: EUR 22 million

      Thereof from EU sources: EUR 22 million
        - already allocated: EUR 22 million
        - planned use: EUR 0 million

3.1.7 Take up of digital technologies: the digital transformation of businesses where at least 75% of Union enterprises having taken up one or more of the following, in line with their business operations.

- **Spain baseline value (latest available historical data point):**

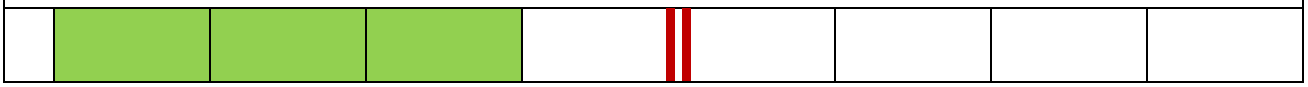
Cloud computing (2022) = 27%; Big data (2020) = 9%; AI (2021) = 7.7%.

- **EU baseline value (latest available historical data point):**

Cloud computing (2021) = 34%; Big data (2020) = 14%; AI (2021) = 8%.

- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
Integration of AI in value chains *- This program supports the digitization and innovation of Spanish companies and SMEs, funding projects that incorporate technologies like AI, IoT, big data, and more within the value chains, facilitating the integration of advanced technologies in the productive structure.*								
Artificial Intelligence R&D Missions *– This program funds collaborative projects in AI for key sectors, with varying funding support for large businesses and SMEs.*								
Spanish Network of Excellence in AI (Red de Excelencia en IA) *– This initiative coordinates research, fosters interdisciplinary collaboration, and prioritizes funding for innovative projects, contributing to Spain's digital transformation.*								
RETECH *- Initiative that articulates various regional projects aimed at digital transformation and specialization, ensuring coordination, collaboration and complementarity between regions.*								
Valle de la Lengua (Data Space for Spanish Language) *- This initiative is part of the Strategic Projects for Economic Recovery and Transformation (PERTE) of the New Economy of Language, which aims to promote the new digital economy based on natural language in Spanish.*								

Grants Program for Demonstrators and Use Cases in Sectoral Data Spaces **-** *The primary aim of the Program is to facilitate the establishment of Sectorial Data Spaces in Spain through the provision of grants for demonstrators and use cases.*


- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 727 million
        - already allocated: EUR 200 million
        - planned: EUR 527 million

      Thereof from national sources: EUR 15 million
        - planned: EUR 15 million

      Thereof from regional sources: EUR 111 million
        - already allocated: EU 24 million
        - planned: EUR 87 million

      Thereof from EU sources: EUR 601 million
        - already allocated: EUR 176 million
        - planned use: EUR 425 million
    - Private investment: EUR 245 million

Spain faces a challenge in the advanced digitisation of companies, which particularly affects SMEs, which account for around 65% of GDP and more than half of employment.

For this reason, many of the measures implemented by Spain to promote advanced digitisation specifically support SMEs by encouraging the adoption of these technologies in value chains through different means (subsidy programmes, specialised consultancy, detection of needs, etc.). These measures mainly focus on promoting research and innovation to design or identify use cases and tailored solutions for vital sectors of the Spanish economy, including the creation of sectoral data spaces to foster to innovation by providing access to more data in a secure and trusted environment.

Significant support is also given to the adoption of trustworthy and sovereign AI-enabled solutions, facilitating the transition of AI solutions from research labs to testing environments to deployment, uptake and commercial markets. It is worth noting that Spain is also joining forces with other Member States to jointly develop cutting-edge Europe-based AI models, exploring the possibility to establish a European Digital Infrastructure Consortium on the Alliance for Language Technologies, to develop a common infrastructure for natural language processing and to develop large multi-language models.

In addition to these measures, the Digital Kit (as presented in the next section) is also expected to contribute to boosting the advanced digitalisation of enterprises. A large number of solutions offered in the Digital Kit contribute to the adoption of cloud and big data (such as Power BI & Analytics, client management software, process management software, virtual office services,

etc.). This is the reason why a significant portion of the measures put in place in this dimension focus on artificial intelligence.

At the same time, the measures implemented to increase the number of ICT specialists and foster an entrepreneurial innovation ecosystem are expected to indirectly contribute to this target. Therefore, the impact of the measures taken will be fully visible from 2026 onwards.

- Estimated investment gap and possible actions to reach the national target values:

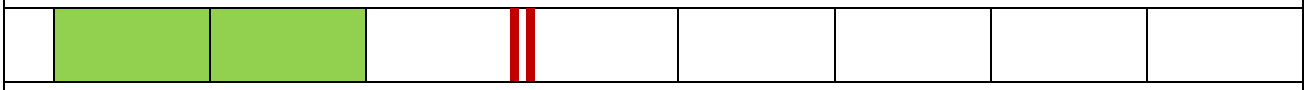
The measures described above will have a positive impact on this target but will not completely address the enormous gap. A diagnostic of the actual state of the digitalisation of SMEs and the impact evaluation of the measures before 2026 should be carried out in order to be able to identify possible action for the following years.

In this direction, Spain may also consider reinforcing its policies and incentives to promote the Digitalisation of SMEs, particularly by leveraging fiscal policies and tax credit.

3.1.8 Digital late adopters: more than 90% of SME with at least basic level of digital intensity

- **Spain baseline value (latest available historical data point):** (2022) 67.5%
- **EU baseline value (latest available historical data point):** (2022) 69%
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
Purchase of digitalisation services.								
Digital Kit program *- The Digital Kit program helps SMEs advance their digital maturity by providing a digital voucher to allocate towards tailored digital solutions selected through a self-diagnostic test on the Acelera Pyme platform.*								
Personalized advisory services and training.								
Acelera Pyme *- Acelera Pyme aims to build a reference ecosystem for the digital transformation of SMEs, with the goal of contributing to the digitization and modernization of SMEs.*								
Industria Conectada 4.0 Strategy *- This strategy aims to boost industrial value and skilled jobs in Spain, shape the nation's future industrial model by promoting emerging sectors and local digital solutions, and establish unique competitive advantages.*								
Agents of Change *- This measure will allow at least 15,000 small and medium-sized companies to incorporate an expert to support the digital transformation of their business.*								
Generation D SMEs *- This measure provides digital transformation training for SMEs to drive growth and internationalization, focusing on management teams and employees, and addressing digital skills gaps.*								

Support for cooperation and innovation networks.
DigitalICEX- *This measure aims to provide digital tools to companies and training them in the use of those tools, while creating a digital environment that enables networking and business matching.*

RETECH Ciberseguridad - *This measure aims to develop the cybersecurity ecosystem across 15 regions, focusing on reducing the territorial gap, promoting digital transformation, fostering leadership, initiating disruptive actions, and generating widespread positive impact for sustainable, inclusive development.*


- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 3 922 million
        - already allocated: EUR 1 628 million
        - planned: EUR 2 294 million

      Thereof from regional sources: EUR 38 million
        - planned: EUR 38 million

      Thereof from EU sources: EUR 3 884 million
        - already allocated: EUR 1 628 million
        - planned: EUR 2 256 million

Spain is deploying very ambitious measures to address the challenge of digitising SMEs (both their processes and their management tools and relations with customers, suppliers and partners), in order to improve their productivity and competitiveness, foster their growth and enhance their resilience for the future.

To ensure that this is a transformative process, which is not just a mere renewal of hardware equipment, support programmes have been launched in a triple dimension: (i) purchase of digitisation services to change the functioning of the company (through the Digital Kit), (ii) personalised advisory services and training for entrepreneurs, employees as well as the incorporation of "change agents" to drive the modernisation of processes, and (iii) support for cooperation and innovation networks.

By addressing the digital transformation of SMEs from this triple dimension, these measures are also expected to foster the adoption of advanced technologies among SMEs. They also indirectly promote business investment in innovation, which is another of Spain's national challenges.

It is worth noting that the Digital Kit is already having a remarkable impact on the digitization of businesses, benefiting more than 62,000 businesses with fewer than 50 employees across the country and in all economic sectors. Given the impact the programme is having, is now set to be extended to SMEs with more than 50 employees. This extension, together with the other measures

being implemented, is expected to have a significant impact that will be reflected in the digitalisation indicators of companies from 2026 onwards.

- Estimated investment gap and possible actions to reach the national target values:

The measures described above will have a positive impact on this target but will not completely address the enormous gap. A diagnostic of the actual state of the digitalisation of SMEs and the impact evaluation of the measures before 2026 should be carried out in order to be able to identify possible action for the following years.

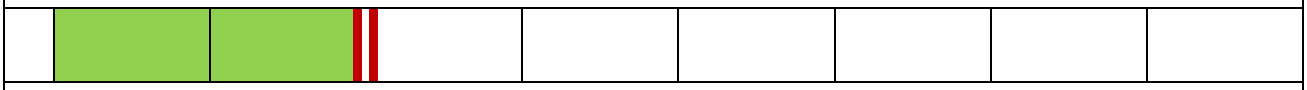
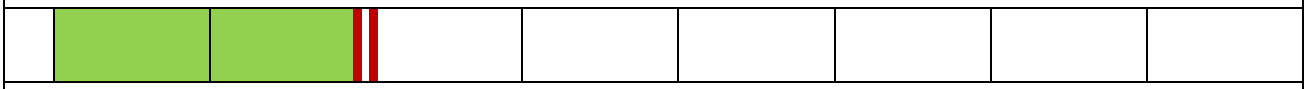
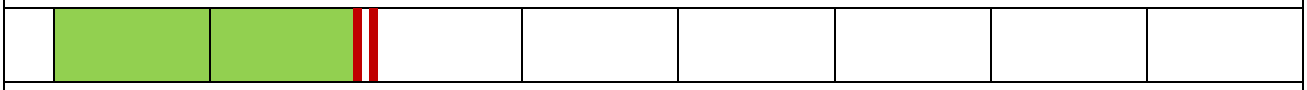
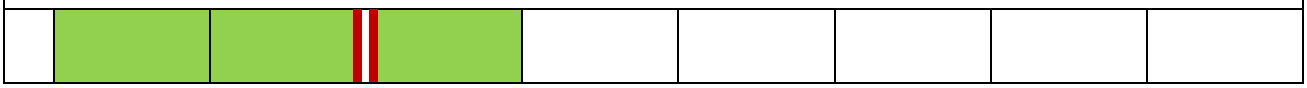
In this direction, Spain might also reinforce its policies and incentives to foster the digitalisation of SMEs notably leveraging fiscal policies and tax credit.

3.1.9 Innovative businesses/scale-ups (unicorns): the digital transformation of businesses where the Union is facilitating the growth of its innovative scale-ups and improving their access to finance, leading to at least doubling the number of unicorns.

- **Spain baseline value (latest available historical data point):** (2022) 14
- **EU baseline value (latest available historical data point):** (2022) 249
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
FOND-ICO Next Tech *- This is a joint initiative, that promotes high-impact digital projects and investment in growth companies. It strengthens public financing, attracts international funds.*								
Oficina Nacional de Emprendimiento *– ONE is a virtual hub offering resources and support for SMEs, self-employed individuals, and startups.*								
ENISA Emprendedoras Digitales *- The ENISA Emprendedoras Digitales financing line supports female digital entrepreneurship through participatory loans, ranging from 25,000 to 1,500,000 euros, to reduce the gender gap in the sector.*								
Desafía Program *- The Desafía Program assists small Spanish companies in entering innovative global technological ecosystems by providing advice, guidance, and connections with key agents through ecosystem experts.*								
The Innovative Business Groups Support Program (AEI)- *This measure focuses on enhancing SME competitiveness through innovation and collaboration. It fosters partnerships between companies and research centres, with a current emphasis on digitizing industrial sectors.*								
Innovative Public Procurement *– This initiative drives innovation in cybersecurity through R&D programs, remote solutions for SMEs, and infrastructure improvements, fostering technological advancements by SMEs and entrepreneurs.*								

INCIBE Emprende – *This program supports start-ups and entrepreneurs with cybersecurity-oriented projects. It offers a range of activities to foster cybersecurity entrepreneurship at every stage in Spain.*

NEOTEC - *This program supports technology-based business projects, fostering entrepreneurship and knowledge transfer from research organizations, with a focus on developing technology as a competitive advantage.*

Innova Invest– *This measure aims to foster R&D in Spain through companies with foreign capital encouraging integration of these companies into the Spanish ecosystem and through grants to innovative companies.*

Programa de Ampliación de la Base Exportadora- *The PABE initiative promotes technological advancement in Spain with three key projects: an Autodiagnosis tool, the APIEM consulting service for international outreach, and a revamped ICEX website, all aimed at enhancing Spain's global business footprint.*

Digital Innovation Hubs Support Program (PADIH)- *This measure aims to bolster Spanish digital innovation hubs' participation in the European EDIH network. Its ultimate goal is to aid the digital transformation of SMEs.*


- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 4 837 million
        - already allocated: EUR 1 872 million
        - planned: EUR 2 965 million

      Thereof from national sources: EUR 174 million
        - already allocated: EUR 163 million
        - planned: EUR 11 million

      Thereof from EU sources: EUR 4 663 million
        - already allocated: EUR 1 709 million
        - planned: EUR 2 954 million
    - Private investment: EUR 4 058 million

In terms of the number of unicorns, Spain has a lower rate of entrepreneurial activity and business spending on R&D than the European Union. However, in recent years, Spain has developed an emerging start-up ecosystem around two poles of attraction such as Barcelona and Madrid. The recently approved Start-Ups Law will improve the digital entrepreneurship ecosystem. In addition, specific programmes are being deployed to support digital entrepreneurship through financing (e.g., Next-Tech), support for growth (e.g., Activa Startups), talent attraction and support for women's entrepreneurship (e.g., Emprendedoras Digitales, The Break). Furthermore, programs are in place to support internationalisation (e.g., Desafia) and innovation (INNOVA, Neotec).

- Estimated investment gap and possible actions to reach the national target values:

Regarding the ENISA Emprendedoras Digitales programme, which is founded for the years 2021-2023, due to its positive response so far and with the aim of further increasing the percentage of women in management positions in innovative companies and start-ups (the foundation of unicorns), an additional €17m could be allocated until 2026, coinciding with the horizon of the Agenda España Digital. Recent reports indicate that the percentage of scaleups in Spain founded by women stands at 20%, suggesting room for improvement in this area.

As for the Next Tech Fund, as is included in the Recovery Plan, investment commitments must be made until 2026. Depending on the Spanish economy capacity to absorb these funds, it might be appropriate to extend their duration until 2030 and, reinforce the available budget (in line with the expected increase in the number of startups and scaleups in the coming years).

3.1.10 Digitalisation of public services: the digitalisation of public services where 100 % online accessible provision of key public services and, where relevant, the possibility for citizens and businesses in the Union to interact online with public administrations.

- **Spain baseline value (latest available historical data point):**

Citizens: (2022) = 86%; Businesses: (2022) = 91%

- **EU baseline value (latest available historical data point):**

Citizens: (2022) = 77%; Businesses: (2022) = 84%

- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
My Citizen Folder **-** *The objective of this measure is to simplify the relationship between the administration and citizens through the Internet and improve their interaction by making it accessible, proactive and personalized from any device.*								
GovTechLab **-** *The initiative aims to utilize technology, notably AI, to enhance the inclusivity and efficiency of public services. Emphasis is placed on simplifying public communication and fostering innovative solutions through a dedicated lab.*								
App Factory **-** *This measure aims to promote the development of quality mobile apps for the main public services offered to citizens, creating a community of open-source developers around the Administration that contributes to making a Marketplace of Administration mobile applications available to citizens.*								
Intelligent Automation Service (RPA) **-** *This measure aims to improve the quality management and processing services and processes of the public administration using intelligent automation technologies.*								
SOC **-** *Expand and strengthen prevention and reaction capabilities for security incidents and increase the capacity for surveillance and detection of cyber threats in a centralized manner. More efficient by relying on AI tools.*								

New Digital Services and Platforms to improve the active and passive labour market service- *This measure aims to develop innovative and digital services that result in a more efficient and effective management of employment services.*


- Budget of all the measures that can be attributed to the target:
  - Public investment: EUR 244 million
    - already allocated: EUR 144 million
    - planned: EUR 100 million

    Thereof from National sources: EUR 70 million
    - planned: EUR 70 million

    Thereof from EU sources: EUR 174 million
    - already allocated: EUR 144 million
    - planned: EUR 30 million

To ensure that digitalized public services exist and enable citizens to access them electronically, the My Citizen Folder program has been implemented. This program serves as a central hub where citizens can access essential information, streamline their interactions with the government through the internet and improve the overall interaction between the administration and citizens. To date, there have been over 1,407,241 downloads, with 10,024,440 accesses and 1,935,553 new users. Likewise, the App Factory is promoting the development of applications to connect citizens with the administration. The goal for 2025 is to have at least half of all public services available through electronic applications.

Additionally, GovTechLab, focuses on the technological modernization of the public sector in general, to enhance the connection between businesses and citizens with the administration. Through the development and testing of digital tools and platforms, they aim to streamline administrative processes and improve the efficiency of public services.

Finally, measures aimed at automating processes within public administration such as Intelligent Automation Service (RPA) and New Digital Services and Platforms have also been promoted. These initiatives are designed to improve the active and passive service of the labour market services to strengthen efficiency and promote sustainability within public administration. Thus, is effectively supporting the EU's commitment to fully digitized and environmentally friendly services delivery for citizens and businesses in all Member States.

- Estimated investment gap and possible actions to reach the national target values:

At the moment, we are estimating the necessary investment on this case, considering all relevant factors and adapting some aspects of programme execution.

3.1.11 Electronic health record: the digitalisation of public services where 100 % of Union citizens have access to their electronic health records.

- **Spain baseline value (latest available historical data point):** (2022) 83.15
- **EU baseline value (latest available historical data point):** (2022) 71.71
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
Improving governance, quality and standardization of health data **-** *This measure aims to organize a management framework and conditions for sharing and use of health data, in line with the guidelines and actions defined in the European Data Strategy.*								
Incorporating clinical data into EU interoperability models **-** *This measure aims to make all the Spanish health data available and incorporate them into the EU interoperability models.*								

- Budget of all the measures that can be attributed to the target:
    - Public investment: EUR 29 million (this investment does not include the investments made by the Autonomous Communities to use themselves the standardization and normalization services offered by the Ministry, nor the integration with their own information systems).

Spain's high starting point with regard to e-health records, coupled with these measures to enhance governance, quality and standardization of health data along with the incorporation of clinical data and interoperability within EU models, are aimed to contribute to the universal access to health data for citizens.

- Estimated investment gap and possible actions to reach the national target values**:**

The implementation of the European Health Data Regulation, expected to be published by the end of 2024, will pose a significant challenge for all member states. Despite Spain's advantageous position in the primary use of data and its national and cross-border implementation, national adaptations will be necessary in the involved information systems. This includes establishing the national digital health authority and data access entities, which will integrate into the mandatory governance model proposed in the health data regulation. Similarly, it will be mandatory to promote the integration of private healthcare providers into the system. Currently, these providers lack mechanisms facilitating health data interoperability, both within the private sector and between the private and public sectors.

The estimated minimum investment over five years, compared to cost calculations made by the Netherlands and Finland and applying correction factors for population, minimum wage, social development index, total number of patents, GDP, and energy costs (in €/kWh), is 1,1 million euros for primary use and 50 million euros for secondary use.

3.1.12 Electronic identification (eID): the digitalisation of public services, where 100 % of Union citizens have access to secure electronic identification (eID) means that is recognised throughout the Union, enabling them to have full control over identity transactions and shared personal data.

- **Spain baseline value (latest available historical data point):** Spain's ID card (DNIe) has been notified at the level of assurance "high" under the Documento Nacional de Identidad electrónico (DNIe) scheme
- **EU baseline value (latest available historical data point):** 21 countries with eID schemes notified
- **Overall timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
Measures that contribute to the target								
New digital identity model (ID-Wallet) - *Provide the citizen with a wallet for identification services according to the model specified in eIDAS.*								

- Budget of all the measures that can be attributed to the target:
  - Public investment: EUR 16.7 million
    - Planned: EUR 16.7 million

  Thereof from EU sources: EUR 16.7 million
    - Planned: EUR 16.7 million

The establishment of a National Digital ID-Wallet by Spain is a pivotal stride toward bridging the technological gap within its populace, targeting a comprehensive integration where 85% of citizens will possess digital competencies by 2030. Concurrently, this venture has the potential to indirectly bolster the pool of digital specialists in the nation. The program's core is designed to foster an inclusive digital landscape, granting every citizen a secure and sovereign handle over their digital identities and interactions with public services. This inclusive approach ensures equitable access and engagement for all, especially for those previously marginalized in the digital realm, thereby reinforcing the broader objective of universal digital proficiency.

- Estimated investment gap and possible actions to reach the national target values:

At the moment, we are estimating the necessary investment on this case, considering all relevant factors and adapting some aspects of programme execution.

Section 4: Main policies, measures and actions to contribute to the general objectives

Section 4: Main policies, measures and actions to contribute to the general objectives

This section presents the main actions, policies, and measures, focussing on key measures and examples of best practice, expected to help achieve the general objectives taking into account the Declaration on digital rights and principles.

4.1. Digital citizenship

Spain is promoting a humanist and inclusive digital transformation process that place the individual at the centre, guaranteeing the principles, values and rights that represent society without leaving anyone behind.

This is the spirit in which the Charter of Digital Rights was approved in 2021, a pioneering initiative launched by the Spanish government to provide certainty to society regarding the new digital reality and increase citizens' confidence in the face of technology disruptions. The Charter aims to serve as a guiding compass for future legal proposals and ensure that the rights and freedoms enjoyed by people living in Spain are equal in the online and offline world.

Spain is now working to promote the implementation of the Digital Rights Charter in specific areas (developing legislative and non-legislative measures in collaboration with stakeholders) and to create a Digital Rights Observation Space. This Space aims to build an open, inclusive and participatory forum for promoting knowledge, debate and dissemination of Digital Rights among citizens and public and private entities, both nationally and internationally.

Furthermore, Spain is committed to safeguarding people from the risks associated to advanced technologies, guaranteeing adequate regulatory frameworks and promoting their ethical and humanist use. Spain has recently created the first European AI Supervision Agency (AESIA) and is developing jointly with the European Commission the AI Regulatory Sandbox. This initiative aims to bring competent authorities closer to AI developers in order to jointly define best practices that will serve as the foundation for the implementation of the future AI Act. This Spanish-led pilot is expected to generate good practice guidelines and guides that promote and raise awareness among companies, especially SMEs and startups, facilitating the implementation of ethical AI practises.

However, to achieve full digital citizenship people also need the right tools, skills and resources to participate in the digital world, without leaving disadvantaged groups left behind. This is why all the measures promoted by Spain, mainly in the field of connectivity and digital skills but not limited to these, have an important focus on reducing various digital divides: territorial, gender, age, income, etc. Examples of such measures include ENISA Digital Entrepreneurs, UNICO-Banda Ancha, UNICO 5G Redes Activas, UNICO Demanda Rural, UNICO Bono social, UNICO Bono pyme, the State Network of Digital Training Centres, the Technological Specialisation Networks (RETECH), or the Digitalisation Strategy for the agri-food sector and the rural environment, among others.

Spain is also promoting measures to facilitate the participation of all citizens in democratic life online and to make use of digital public services. Together with the above-mentioned measures aimed at improving the interaction between government and citizens, the Ministry of Economic Affairs and Digital Transformation is promoting the Decalogue of Clear Language in the Administration. This initiative seeks to make digital procedures easier for citizens to understand for citizens. In addition, initiatives are being implemented to simplify the number of portals available to the Administration and

to increase the number of chatbots and voice assistants to help citizens in finding the procedure they need.

Plus, other complementary initiatives are being developed to ensure and promote online access to public services for all groups by bridging existing digital divides. On a national level, the Administration Near You initiative aims to make public administration more accessible and beneficial to residents of smaller towns by providing them with the skills and resources necessary to leverage electronic administration. The program is expected to benefit over 7.5 million people, with nearly 30% of whom are over 60 years old.

4.2. Fostering leadership and sovereignty

The Digital Spain agenda is achieving the development of infrastructures and the growth and modernisation of the Spanish economy. This led to a continuous expansion of the digital industry that will contribute to strengthening the Union's digital leadership and sovereignty. Spain is also boosting the innovation and development capabilities in advanced digital technologies, ensuring that these are designed in line with European values, as well as reinforcing the cybersecurity of its infrastructures, organisations and citizens.

To ensure digital autonomy and reduce Europe's strategic dependencies, Spain is boosting the national industry of advanced digital technologies. In addition to quantum computing and semiconductor production, Spain is also promoting the development of other advanced technologies such as natural language processing (through the PERTE Lengua), neuro technologies (through Spain Neurotech), and advanced mobile solutions (through UNICO 6G I+D, UNICO 5G Sectorial, UNICO 5G Ciberseguridad and 6G Pilots).

The PERTE of New Language Economy aims to promote the new digital economy based on natural language in Spain. This initiative promotes progress, in natural language processing (NLP), automatic translation, and conversational systems in Spanish and co-official languages. The PERTE also contributes to fostering more language diversity in NLP tools to mitigate bias in algorithms and improve the accuracy of data. The PERTE has a budget of 1.1 billion euros of public investment, with the objective of mobilizing an additional 1 billion euros of private investment.

The National Centre for Neurotechnology (Spain Neurotech) is a pioneering institution in Spain and Europe committed to the development of technology tools based on brain science. This centre, one of only five globally, is dedicated to catalysing scientific progress in this field. Its mission includes advancing our understanding of the human brain, developing therapies for diseases of the nervous system, fostering innovation, formulating ethical guidelines for emergent technologies, and engaging society in scientific undertakings. A primary goal of this measure is to bring together top professionals in the field of neurotechnology, facilitating significant advancements and solutions in the interaction between digital devices and the nervous system. Spain Neurotech's also has a commitment to formulating ethical guidelines ensures transparency and the respect for fundamental values.

The UNICO 6G I+D provides direct aid to public universities and public R+D centers in order to reinforce their leadership in cellular research, so that they are positioned at the forefront of 6G development. The aid granted involves intense public-private collaboration.

The UNICO 5G Sectorial aims to promote the development of an ecosystem between companies, operators and other agents to facilitate the application of 5G technology in an agile and fast way in key economic sectors in our country. It is intended to promote a productive fabric that thinks, creates

and designs applications and services that take advantage of this technology, exercising a driving and demonstrative role for the specific application sector, and thus reinforce the role of Spain as one of the driving poles of digitalization through the application of 5G technology throughout the EU.

The UNICO 5G Ciberseguridad provides for the creation of a public center to ensure compliance with the requirements, derived from the 5G Cybersecurity Law. Furthermore, this program will support the creation of ecosystems for cybersecurity in the field of 5G and avoid the risks derived from it.

The 6G pilots support the realization of pilot experiences designed to test the new generation of 6G mobile network technology starting from 2026 - estimated to coincide with the completion of previous technological developments. – This will enable the development of new smart services that facilitate the digital and ecological transition of our economy. Investing in 6G technology will foster Spain's and EU's leadership and sovereignty from various angles including reducing dependency on foreign technology, strengthening EU/national security, and bolstering economic resilience and influence.

The PERTE Chip has the purpose of strengthen the capabilities in the design and production of the microelectronics and semiconductor industry in Spain from a comprehensive perspective, with the aim of enhancing strategic autonomy at both the national and European Union levels. This initiative is a response to the growing demand for semiconductor devices in key sectors such as the automotive industry, where the PERTE in the Electric and Connected Vehicle Sector is also applied, as well as in the household appliance sector. These efforts are in line with the provisions established in the European Chip Act. This strategic project is expected to mobilize a public investment of 12,250 million euros by the year 2027 and, at the same time, trigger a significant influx of private investment.

In parallel, the IPCEI-CIS has also contributed to develop data processing infrastructures, data exchange tools, architectures and governance mechanisms to allow for a successful data exchange and to federate energy-efficient and reliable cloud infrastructures and related services. Also, the UNICO I+D Cloud has increased the leadership of Spanish research groups in Cloud computing, promoting digital transformation through research, development and innovation in the field of this technology.

To strengthen the cybersecurity capabilities, multiple initiatives and measures are being developed across several lines of action: cybersecurity incident response services, training and capacity building programs, development of diagnostic tools for cyber risk prevention and enhancing the country's resilience to cyberattacks.

To assist internet users, businesses, professionals, minors, and their caregivers or educators with their day-to-day cybersecurity issues, INCIBE has launched the helpline "Tu Ayuda en Ciberseguridad" helpline. This helpline is a national, free, and confidential service attended by a team of experts from various disciplines offering technical, psychosocial, and legal advice through a range of contact options like calling 017, instant messaging (WhatsApp and Telegram), email, a web form, and, since 2023, face-to-face consultations at the INCIBE facilities. As of its third anniversary, the service had already handled over 184,199 queries, with an average of more than 1,295 queries per week.

The Computer Security Incident Response Team is another service provide by INCIBE, offering round-the-clock response to cybersecurity incidents that may affect the operations of citizens and private law organizations, including those involved in critical and strategic infrastructure, essential

services, and digital service providers. The process of incident management involves coordination with the organization's security team and other facilitating entities, such as International ISPs, CERT/CSIRT, Law Enforcement Agencies, and the Office of Cyber Coordination (OCC) of the Ministry of the Interior. Moreover, the team proactively identifies certain incidents that may go unnoticed by those affected. They also prepare for potential cybersecurity crises that could result from multiple high-impact incidents within a large number of organizations, requiring dedicated resources, processes, and training to manage such scenarios.

To capacitate companies and citizens, The Secure Your Business program and the Confía Program offer a comprehensive suite of resources, training, cooperation agreements, and tools to promote cybersecurity awareness and resilience among businesses, citizens, and children alike. Secure Your Business, available through a dedicated website, focuses on providing businesses with crucial cybersecurity resources. Furthermore, the program promotes a collective approach to cybersecurity through cooperation agreements and offers practical solutions such as self-diagnosis tools and security policies, specifically catered to SMEs. In contrast, the Confía Program provides a more holistic cybersecurity framework aimed at fostering a holistic cybersecurity culture across all societal sectors. Its key strategies encompass raising awareness through targeted campaigns for citizens, children, and businesses, offering specialized cybersecurity training resources, facilitating cooperation and coordination via bilateral and multilateral agreements, and developing specific technological solutions to address the unique cybersecurity needs of minors, citizens, and businesses.

To prevent cyberattacks, the Cyber-resilience Improvement Indicators (CII) initiative consists of a self-diagnostic tool developed to measure an organization's ability to endure and overcome from digital disasters and disruptions**.** It aims to assist all stakeholders in enhancing their cyber resilience capabilities, providing a process to measure the maturity level of their controls in anticipation, resistance, recovery, and evolution after suffering from adverse conditions, stress, or attacks on their cyber resources. The CII model allows organizations to assess their readiness to anticipate, withstand, recover, and evolve following incidents that could affect their service delivery. With a similar objective, **CyberEx** is a service provided by INCIBE-CERT that enables organizations to both train and assess their capacity to respond to cybersecurity incidents. The initiative tests both the technical and organizational capabilities of entities, and their coordination during cyber threat situations.

The Sectorize INCIBE-CERT Services Based on New Challenges initiative aims to prepare Spain for the commitments outlined in the NIS 2 directive and other regulations. INCIBE, as the national CERT for citizens and private companies, intends to tailor its services to meet the distinct needs of each strategic business sector within the country. The principal goal is to enhance resilience to cyberattacks, amplify risk-awareness, expand knowledge of cybersecurity processes, and escalate the efforts of both public and private organizations to achieve a minimum basic level of cybersecurity. The specific actions planned or implemented include a comprehensive study of each strategic sector as identified in the NIS 2 directive, understanding and addressing their unique requirements. INCIBE is directly engaging with these sectors and forging connections with prominent business associations across the nation. Furthermore, this initiative aims to reinforce and improve current services based on the feedback and needs of the companies involved.

The Programme to Foster ISMS (Information Security Management Systems) Certifications is an INCIBE grant initiative aimed at promoting Information Security Management Systems (ISMS) certifications among Small and Medium Enterprises (SMEs). The goal is to align SMEs with international (ISO 27001) and national (ENS) standards, transforming them into secure supply

chain contributors for private and public entities in the essential and important sectors under the scope of the NIS2 Directive. These grants are directed at consultancy companies that implement and certify the standards, recognizing them as vital agents of change. These consultancies ensure the certifications are effectively delivered to SMEs, who are the indirect beneficiaries of the programme. Collaborating entities play an important role in managing the initiative, maximizing its impact by reaching both SMEs and consultancies in cybersecurity standards.

Finally, the National Coordination Centre for Spain (NCC-ES) is an important part of the new European management framework that includes the European Cybersecurity Competence Centre (ECCC) based in Bucharest and a network of 27 National Coordination Centres. Established by the European Regulation (EU) 2021/887 of May 2021, the ECCC and its NCC network were created by the Commission in 2021 with the intention of bolstering Europe's cybersecurity capabilities and competitiveness and fostering a robust Cybersecurity Community. The NCC-ES's activity is grounded in four core pillars: supporting the strategic tasks of the ECCC, fostering cross-border cooperation and preparation of joint actions, acting as a national point at the national and European level, and enhancing national-level cooperation by promoting and intensifying dialogue in the research and innovation sector of cybersecurity.

4.3. Contributing to the green transition

Spain is leveraging digital enabling technologies to reinforce the green transition in key areas such as the agri-food sector, mobility, energy, circular economy and water use and management, **as well as implementing innovative programs to reduce the environmental impact of energy-intensive digital technologies** such as artificial intelligence (through the National Green Algorithms Plan).

In the primary sector, numerous measures are being developed to promote the green transition within the framework of the Second Action Plan (2021-2023) of the Digitalisation Strategy for the agri-food sector and the rural environment. These measures aim to promote an economically, socially and environmentally sustainable agri-food sector and to encourage the active population in rural areas. The measures of the Second Action Plan, endowed with 64 million euros, include support for 4.0 technology and precision agriculture, the promotion of data usage to improve efficiency and monitor environmental impact, support for sustainable technological entrepreneurship in the sector, and the establishment of an Observatory for the digitization of the agri-food sector. In 2024, the III Action Plan will be presented to implement measures up to 2026, ensuring continuity to these lines of action.

In the field of mobility, Spain has promoted several initiatives, including the PERTE electric car project, with to the goal to create the necessary ecosystem in Spain for the development and manufacture of electric and grid-connected vehicles, with the ultimate aim of positioning Spain as the European hub for electromobility. The development of this project foresees a total investment of more than 24,000 million euros, mobilizing private investment of 19,700 million euros. In addition, the digital transformation of the transport system is also being undertaken to achieve greater economic and environmental efficiency.

To support the energy transition, Spain is focusing on the digitisation of electricity grids with an investment of up to 525 million euros allocated between 2021 and 2023, as a way to promote the decarbonisation of the economy, facilitating the integration of more renewables energies into the system, better management of energy flows and without penalising electricity price signals, providing incentives for electrification.

In the field of environmental management and the circular economy, 100.5 million euros have been allowed for the development of digitalisation tools that enable efficient management of the information needed in transition territories. This includes, among other things, ensuring a secure and accessible supply chain of materials, reducing waste generation and facilitating the telematic processing of files**.**

To address the challenge of control and correct management of water usage, the PERTE for the digitalisation of the water cycle has been launched, with an investment exceeding 3,485 million euros. This PERTE promotes the use of new information technologies in the integral water cycle, which will improve its management, increase efficiency, reduce losses in the supply networks and advance in the meeting the environmental objectives set by the hydrological planning and international regulations.

With the aim of developing environmentally friendly technology guided by sustainability criteria, the National Green Algorithms Plan (PNAV) has been launched, with an investment of 257.7 million euros from the European Next Generation EU funds. The primary objective of PNAV is to incorporate environmental sustainability variables from the inception and early development stage artificial intelligence algorithms, thus promoting Green Artificial Intelligence by Design.

In addition to these flagship initiatives, Spain is committed to that all the measures included in the Digital Spain agenda adhere to the principle of not causing significant harm to the environment, which, combined with the associated climate/environmental labelling, ensure that digitization progress in a sustainable manner.

Section 5: EU level cooperation

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5.1 Multi-Country projects

5.1.1 Multi-Country projects included in the list of areas of activity for MCP in the Annex of the Decision, to which Spain is committing or plans to commit in the future.

European Mobility Data Space

- **Cardinal point:** Digital transformation of businesses
- **Area of Activity:** European Common Data Infrastructure and Services
- **Progress:** Pre-notification

This EDIC is called to play the role of a trusted data infrastructure and service intermediary that connects all European flagship projects in the mobility and logistics data domain, ensuring their standardization and interoperability. The EDIC aims to build bridges between ongoing development projects in different sectors and countries, in order to promote greater cooperation, interoperability, use of data and infrastructure and best practices, as well as the exchange of knowledge and information.

Spain is particularly committed to advancing the European FEDeRATED project, ensuring seamless continuity and fostering productive dialogues within the SIMPLE logistics data space. The SIMPLE project is an initiative of the Ministry of Transport, Mobility and Urban Agenda of Spain that aims to develop and implement a national logistics platform that integrates all the information of the activity of freight transport and logistics in the country.

Germany, the Netherlands, Finland, and Spain together with Acatech, Open Logisitic Foundation and IDSA, have joined forces for the establishment of a multi-country project (MCP) in the domain of mobility and logistics data to facilitate from a holistic point of view the access and reuse of data, as well as infrastructures and tools, based on European values.

The EDIC will build on the preparatory action (CSA DEP) PrepDSpace4Mobility and the next deployment action under the Digital Europe Program. It will collaborate and ensure alignment with the NAPCORE (Connecting Europe Facility) project and other initiatives, such as the Digital Transport and Logistics Forum (DTLF). Technically, it will converge with European initiatives for the construction of data spaces (DSSC, Simpl).

Its activity will focus on two levels, on a strategic and transversal level of projects, the EDIC will provide a common space to exchange information and promote broader cooperation and coordination; and on a more practical level, for the immediate benefit of its members and users, EDIC will help develop and implement cross-border use cases/pilots/labs.

As a result, the EDIC will contribute to the general objectives of “promotion of leadership and sovereignty” and “contribution to the ecological transition”.

The pre-notification made does not specify the contributions of the countries, trusting them to the timely parliamentary approval. In the case of Spain, no contributions have been set pending the scope of the project. In the case of the other promoters, the Netherlands allocates €42 million for its logistics infrastructure and use case development, Germany for its MDS €14 million and Finland €14 million for several previous mobility projects.

ALT-EDIC (Alliance for Language Technologies)

- **Cardinal point:** Secure and performant sustainable digital infrastructures
- **Area of Activity:** European Common Data Infrastructure and Services
- **Progress:** Pre-notification

This MCP will contribute to the achievement of the general objective "Promotion of leadership and sovereignty" – including the preservation of the cultural and linguistic diversity of Europe and the technological leadership and strategic autonomy.

The current total budget, not closed yet, is around 26 M€. The committed contribution of Spain is:

- 195,000 € / year for 3 years as financial contribution
- 1,564,000 € for 4 years as in-kind contribution

The implementation mechanism will be an EDIC. As of today, it will be based on the Assembly of Member States + Director + EU Commission, the Industry Consortium, the Strategic Committee and two advisory boards (technical and legal/ethics).

The impact will be very high if the ambitious objectives are met but there are high barriers like the regulation, the market dominated by the big tech and the MS involvement.

Participating MS are Bulgaria, Ireland, Greece, Spain, France, Latvia, Lithuania, Hungary, Poland, Portugal and Slovenia.

1+MG Initiative: Genomic Data Infrastructure (GDI)

- **Cardinal point:** Secure and performant sustainable digital infrastructures
- **Area of Activity:** European Common Data Infrastructure and Services
- **Progress:** Pre-notification

The 1+ Million Genomes Initiative (1+MG) is a commitment of 23 European countries to give cross-border access to one million sequenced genomes by 2022.

The initiative forms part of the EU's agenda for the Digital Transformation of Health and Care and is aligned with the goals of the European Health Data Space (EHDS). The ultimate objective of the 1+MG initiative is to support shared health policy goals; notably to achieve better health for citizens, future sustainability of health systems, and to boost large-scale data-driven biomedical and clinical R&D in Europe. General topic addressed (Digital targets): "promotion of leadership and sovereignty".

Under 1+MG emerge the project GDI Genomic Data Infrastructure. The project supports the 1+Million Genomes (1+MG) initiative ambition to enable secure access to high-quality genomics and the corresponding clinical data across Europe for better research, personalised healthcare and health policy making. Establishing a federated, sustainable and secure infrastructure based on open community standards to access genomic and related phenotypic and clinical data across Europe.

The GDI project has a 40 million € budget and it is jointly funded by the European Commission under the Digital Europe Programme and through co-funding from participating Member States.

Spain is interested in supporting the project, both strategically and financially. The country has a history of investment in the application of genomics results in clinical practice, focused on promoting their use in a wide range of application fields. This is reflected in the creation and implementation of

different programs, at national level, in both clinical and research genomic medicine through programs such as IMPaCT and PMP (Personalized precision medicine).

Establishing an infrastructure requires sustainability and therefore binding commitments by the countries who establish such infrastructure. Thus, it is envisaged the creation of an EDIC for the 1+ Million Genomes initiative and its European Genomic Data Infrastructure. Deployment of a sustainable and secure cross-border linkage of and access to a multitude of genomic and related phenotypic, clinical and other datasets across Europe based on the progress achieved in the context of the 1+MG. By now, 24 EU Member States as well as the UK and Norway have signed the Declaration on stepping up efforts towards creating a European data infrastructure for genomic data and implementing common national rules enabling federated data access.

List of signatory countries of the Declaration: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, UK.

Cybersecurity skills Academy

- **Cardinal point:** A digitally skilled population and highly skilled digital professionals
- **Area of Activity:** European Common Data Infrastructure and Services
- **Progress:** Pre-notification

As part of the 2023 European Year of Skills, the Commission adopted a Communication on a Cybersecurity Skills Academy ("the Cyber Skills Academy") on 18 April 2023.

The Cyber Skills Academy is a European policy initiative aiming to bring together existing initiatives on cyber skills and improve their coordination, in view of closing the cybersecurity talent gap and boosting EU's competitiveness, growth and resilience.

Ultimately, to provide an infrastructure that serves as a single entry point to foster cooperation between academia, training providers and industry, where the supply and the demand sides of the EU cybersecurity ecosystem could meet and be trained, the Academy is taking the shape of a European digital infrastructure consortium (EDIC).

Currently, discussions have developed about: Implementation strategy, Financial contributions, In-kind contributions, Rationale and objectives of the MCP to be implemented by the EDIC, Timeline of the work ahead.

As the EDIC is yet to be operative, the European Commission, ENISA and the ECCC – through the support of National Coordination Centres (NCCs) – are supporting the implementation of the Academy.

The Cybersecurity Skills Academy will help achieve the targets of ICT Specialists: 20 million + gender convergence and Basic Digital Skills: minimum 80% of population; as well as the general objectives of promotion of leadership and sovereignty and digital citizenship. It will do this by tackling the urgent need to reduce risks by addressing the cybersecurity skills shortage and gaps, recognizing that the security of the EU cannot be guaranteed without the EU's most valuable asset: its people.

This Academy will be based upon 4 pillars, them being: Knowledge Generation and Training, Funding & Projects, Stakeholder Involvement and Measuring Progress.

Participating countries are Austria, Greece, Italy, Portugal and Slovenia. Other countries expressed

interest to join this initiative.

In particular, Spain is interested in taking part in the Cybersecurity Skills Academy EDIC and will evaluate a potential commitment with the MCP.

Local Digital Twins towards Citiverse

- **Cardinal point:** Digital transformation of public services
- **Area of Activity:** Connected public administration
- **Progress:** Pre-notification

Local Digital Twins could contribute to the accomplishment of the three general objectives. In particular, LDT could foster the "promotion of leadership and sovereignty" thanks to its impact on the management of different types of crisis, and could also contribute to the ecological transition objective, as regards to the efficiency in terms of energy and mobility. As for digital citizenship, Citiverse could mean a new channel for improving the communication Citizen-City.

Spain is already involved in EDIC on Local Digital Twins towards Citiverse, not only as a member but also leading the consortium occupying the roles of Chair (Valencia) and Deputy Chair (Barcelona).

Valencia city offers one of its facilities as a seat (headquarters) and staff resources (shared with public universities) for the future EDIC on LDT towards Citiverse, and Barcelona offers in-kind contribution and 4 entities represented, IMI, BR, BSC and OMD.

The Statutes are still work in progress and will be finalised with the participation, and based on the inputs, of all Member States and cities involved. It is expected to be finished by the end of 2023. In 2024, is expected to be approved the set-up of EDIC on LDT toward Citiverse. Then, the EDIC will be in Operational phase.

Up to now there are some MS that have signed the expression of interest, including Spain, Germany, Estonia, Slovakia and Slovenia. There are some other countries that are in the process of joining the process, including The Netherlands, Denmark, Sweden, Poland. Contacts with the rest of MS will be held in the weeks to come.

Vehicle of the Future

- **Cardinal point:** Secure and performant sustainable digital infrastructures
- **Area of Activity:** Endowing the Union with the next generation of low-power trusted processors
- **Progress:** Informal Working Group

The objective of this MCP is to enhance European competencies in all technologies pivotal to the future of mobility, especially those associated with semiconductors. We are promoting an open automotive platform and software-defined vehicle ecosystem led by European stakeholders. This initiative aims to bridge gaps between OEMs and tech innovators, ensuring Europe remains at the forefront of the automotive industry through digital innovation. The rise of the new Risc-V standards can be instrumental in helping Europe navigate these challenges.

This initiative will strengthen Europe's digital sovereignty and further its digital ambitions, particularly concerning "Cutting-Edge Semiconductors". Such efforts align seamlessly with ongoing initiatives like EuroHPC and the Chips Joint Undertaking.

Each member state will make contributions through its national programs. For instance, Spain will be utilizing the "Electric Vehicle" and "Chip" PERTEs, supported by the Recovery and Resilience Facility.

The MCP will be realized through the European Digital Infrastructure Consortium.

We expect active participation from various Member States, given that many, including Spain, have proposed this MCP.

European Blockchain Services Infrastructure Consortium (EBSI-EDIC)

- **Cardinal point:** Digital transformation of public services
- **Area of Activity:** European Blockchain services infrastructure
- **Progress:** Formal application submitted

The objective of this MCP is to establish the European Blockchain Services Infrastructure and operate it to deliver EU-wide cross-border services, in particular public services. This includes notably to enable the cross-border exchange of trusted and secure verifiable credentials contributing to the European Digital Identity framework; and to reinforce trust and cyber resilience in delivering services. Additionally, it should support cross-border cooperation between public authorities, facilitate the interoperability and contribute to better conditions for innovation.

Particularly, this MCP will have high impact to achieve both General Objectives "Promotion of leadership and sovereignty" and "Digital citizenship", moreover, regarding Digital Targets the MCP is focused on the Digital Identity dimension, where 100% of citizens will have access to digital ID, in this regard, this MCP will have a very significant role. Also, in the digitalization of other key public services such as the education and social security areas. Finally, it will support blockchain-based services for the benefit of citizens, society, and economy.

Each Member State will contribute with 100.000€ per year (50.000€ in 2023) also with in-kind contribution (like nodes deployment or improvements of the network).

The MCP implementation mechanism will be through a European Digital Infrastructure Consortium.

Other Member States participating: Belgium, Italy, Poland, Portugal. Croatia, Slovenia, Luxembourg. Pending Romania and Greece. In addition, it is expected the participation of all Member States already participating in the European Blockchain Partnership (27 MS).

EUCAIM Cancer Image Europe

- **Cardinal point:** Secure and performant sustainable digital infrastructures
- **Area of Activity:** European Common Data Infrastructure and Services
- **Progress:** Informal Working Group

This MCP relates to implementing and operating the European Digital Infrastructure for cancer image, facilitating the discovery, querying and access to deidentified high-quality data for secondary use in research and innovation.

The Spanish coordination of this MCP will contribute to Spain achieving the general objective of “Promotion of leadership and sovereignty” in the specific area of access to health data to eliminate barriers for European researchers and innovators developing AI-based tools and methods. This MCP

will also contribute to Spain achieving the digital target related to Tech uptake under the "Digital transformation of businesses" category, facilitating access to Big Data in the field of health imaging.

The budget for this project has not yet been determined.

The MCP implementation mechanism is a digital infrastructure under a hybrid federated-centralised model. The platform will provide access to distributed processing environments, including tools and computing-intensive frameworks. This model will preserve the independence of existing repositories of health images and also offer a centralized governance corresponding to a higher coordination for a cohesive and coherent structure in the access to the data.

Other MS that have expressed interest in participating in this MCP are Latvia, Italy, Sweden, France, Belgium and Greece. A working group for the EUCAIM EDIC has been set up by the EC MCP Accelerator, at the request of Spain.

5.1.2 The joint commitments that Spain is making or planning to make in the future.

5G Corridors / Smart Networks and Services Joint Undertaking (SNS JU)

The objective of 5G corridors is to cover 26 000 km along the TEN-T networks4 with Connected and Automated Mobility (CAM)-enabling 5G infrastructure by 2030. This initiative is connected to the Smart Networks and Services Joint Undertaking which coordinates the development of project pipelines, common solutions and best practices.

These initiatives will contribute to increasing 5G coverage across Europe.

IPCEI ME/CT

IPCEI ME/CT, was jointly prepared and notified by fourteen Member States: Austria, Czechia, Finland, France, Germany, Greece, Ireland, Italy, Malta, the Netherlands, Poland, Romania, Slovakia and Spain. This new IPCEI aims to strengthen the European electronics industry, focusing on the design ecosystem, supply chain capabilities and the first industrial deployment of advanced semiconductor technologies.

By investing across the semiconductors value chain, this program will contribute to the objective of producing cutting edge semiconductors in the Union is at least 20 % of world production in value.

The Member States will provide up to €8.1 billion in public funding, which is expected to unlock additional €13.7 billion in private investments. As part of this IPCEI, 56 companies, including small and medium-sized enterprises and start-ups, will undertake 68 projects.

Spain has four direct and six associated partners and will allocate up to EUR 390 million of public funds from RRF. However, Secretariat of State for Telecommunications budget is EUR 111.5 million covering one direct partner. While Ministry of Industry is financing three direct partners and six associated partners with EUR 250 million.

The program will start in 2023 and will last until 2026. The expected impact in the European industry is summarized in the following bullets:

- IPCEI ME/CT will reduce the fragmentation of the Union's R&D&I activities in the area of microelectronics and communication technologies by coordinating technological roadmaps and national strategies.
- Create beyond global state-of-the-art microelectronics and connectivity solutions enabling the digital transformation.

- Contribute to the first industrial deployment of strategic technologies that offer an alternative to current microelectronics devices, thereby increasing Union's technological presence in the global microelectronics domain.
- Enable the most energy-efficient and resource-saving microelectronics systems.
- Contribute to the development of competences and skills, with the aim of attracting private investments and supporting new skilled jobs in cutting-edge technologies inside the Union.

IPCEI CIS

IPCEI-CIS projects intend to prepare technology and service providers for a deployment of a thousand nodes (that is the share of the 10.000 target for Europe that might correspond to Spain) with a minimum first industrial deployment:

- As it is currently planned, it will be covered with more than 100 near and far nodes deployed as part of FID phase from the different Spanish Companies participating in the IPCEI CIS.

On the other hand, IPCEI CIS will contribute to accelerate the switch of Cloud and Edge digital infrastructures to full renewable energy and to place Europe in a leading position for energy efficiency. These investments will enable to support the goal of climate neutrality by 2030 for the datacentre industry and complement the Climate Neutral datacentre Pact.

- Research and potential inclusion of Green Hydrogen.
- Edge nodes will incorporate a 100% option to use renewable energy.
- Power usage effectiveness in cooling with Geothermal energy.
- Sustainability in operations, in a fully decarbonized model (certified 0% carbon footprint operations) with the use of natural refrigerants.
- Secure protocols and standards will guarantee a safety environment for development and use of digital services and applications.
- Sectors like Tourism, Health, Industry, Manufacturing, Media, gaming and Entertainment or Smart cities are widely distributed throughout the national geography. Having a limited coverage in a few regions would create a new digital divide, favoring companies and sectors with better conditions for parameters like latency or jitter in certain areas, and not delivering or providing a bad experience in others. During the FID, all the nodes will be open to future customers and providers to test and validate their services and use cases whatever is the region in which they are located.

The program will contribute to develop data processing infrastructures, data exchange tools, architectures and governance mechanisms to allow for a successful data exchange and to federate energy-efficient and reliable cloud infrastructures and related services. It will also contribute to strengthen Europe's industrial position in the global cloud and edge computing market, addressing in particular the trend towards increasing distribution and decentralisation of data processing capabilities and the need to enable a federated and vendor-agnostic cloud ecosystem.

Spain plans to contribute with 116 million euros. This project is joined by Belgium, Croatia, France, Germany, Hungary, Italy, Latvia, Luxembourg, Poland, Slovenia, Spain and The Netherlands.

Chips Joint Undertaking

The Chips Joint Undertaking focuses on areas where there is a demonstrable value added in acting at EU level due to the scale, speed and scope of the efforts needed for the EU to meet its long-term Treaty objectives and deliver on its strategic policy priorities and commitments. The Chips Joint Undertaking is based on a long-term Strategic Research and Innovation Agenda and is well suited to address complex cross-border challenges.

The Chips Joint Undertaking will contribute to Spain achieving Digital Decade objectives, pushing forwards microelectronics in Spain. Moreover, Spain plans to propose new pilot line focused on photonics in order to increase our presence in microelectronics.

Spanish pilot line proposal is supported as well by Belgium and Ireland; however, we are trying to involve other Member States and companies. The Photonics pilot line is expected to be financed with an estimated budget of 200 million euros.

Finally, if we could seize this opportunity, Spain and Europe would become global key players in microelectronics.

EDIH (European Digital Innovation hubs)

European Digital Innovation Hubs (EDIHs) are one-stop shops supporting companies and public sector organisations to respond to digital challenges and become more competitive.

EDIHs will support companies to improve business/production processes, products, or services using digital technologies by:

- Providing access to technical expertise and testing, as well as the possibility to 'test before invest'
- Providing innovation services, such as financing advice, training, and skills development that are central to successful digital transformation.
- Helping companies tackle environmental issues, in particular the use of digital technologies for sustainability and circularity.

An overarching goal of the EDIH network is to support the achievement of the EU's Digital Decade 2030 targets by:

- Accelerating the digital transformation of the private and public sector across the European Union by driving the uptake of advanced digital technologies – target to transform 75% of EU companies into Cloud/AI/Big Data users.
- Ensuring that 90% of SMEs in the EU have at least a basic level of digital maturity.
- Creating new European value chains.

In line with this targets, the Spanish's Recovery, Transformation and Resilience Plan, includes the so-called "Support Programme for Digital Innovation Hubs», with a budget of 37,590,000 euros.

This Programme will support, at least, 25 national Digital Innovation Hubs and 1,253 SMEs by the end of 2025, contributing to the targets mentioned above.

The EDIH Network is currently comprised of 151 EDIHs (from all Member States) that are co-funded by the European Commission´s Digital Europe Programme and 76 EDIHs with Seal of Excellence.

Spain contributes to that numbers with 12 EDIHs co-founded and 13 with Seal of Excellence.

Section 6: Stakeholder feedback

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This section describes the overall activities and mechanisms undertaken to involve private and public stakeholders in the preparation of the national roadmap, including a detailed description of who was consulted, a summary of the comments made and how the feedback has been taken into account. Furthermore, this section includes a summary of the participation mechanisms instituted in the deployment of the Spanish Digital Agenda.

In conclusion, the following mechanisms are described in the sections bellow:

1. Public Consultation on the development of Spain´s Roadmap for the Digital Decade 2030
2. Participation in the development and deployment of the Spanish Digital Agenda
3. Participation of Advisory bodies and expert groups of specific sectors
4. Mechanism of regional and local authorities' participation of for the Recovery, Transformation and Resilience Plan

The systematic consultations and involvement of social partners, regional and local representatives, economic agents and other relevant stakeholder has been crucial for the successful design and implementation of the policies, measures and actions that compose Spain's roadmap, ensuring a broad ownership of the overall policy agenda. The details of these contributions and the way they have been incorporated into the roadmap will be discussed further below.

6.1 Public Consultation on the development of Spain´s Roadmap for the Digital Decade 2030

Introduction

From October 31 to November 15, 2023, the Government of Spain conducted a public consultation on Spain's Roadmap for the Digital Decade with the aim of gathering opinions and proposals from all interested parties.

The consultation has been addressed to the public, experts, economic and social agents, civil society organizations, as well as the rest of the interested parties, both public and private and has been organized around three main blocks:

1. Review of the general objectives and digital goals of the Spanish's Roadmap
2. The measures to achieve the general objectives
3. The measures to achieve the digital goals set for 2030

In the first block of the consultation, participants assessed the importance of both the general objectives of the digital decade (digital citizenship; European digital leadership and sovereignty; and the digital contribution to ecological transition) and the four major action areas to achieve the digital targets

(digital skills, digital infrastructure, digital transformation of businesses, and digital transformation of public services).

In the second block, consults are made about the proposed measures aimed at achieving each of the proposed general objectives and in the third block, the focus is on the measures to attain each of the digital goals for 2030. In both cases, participants are given the opportunity to suggest additional measures.

Results of the consultation

A total of **45 responses** were received: 19 (36%) from individuals, 11 (24%) from private companies, 9 (20%) from business associations, 5 (11%) from public organizations and professional associations, and 3 (7%) from non-governmental organizations, with 1 (2%) from unions[10] (see figure 1).

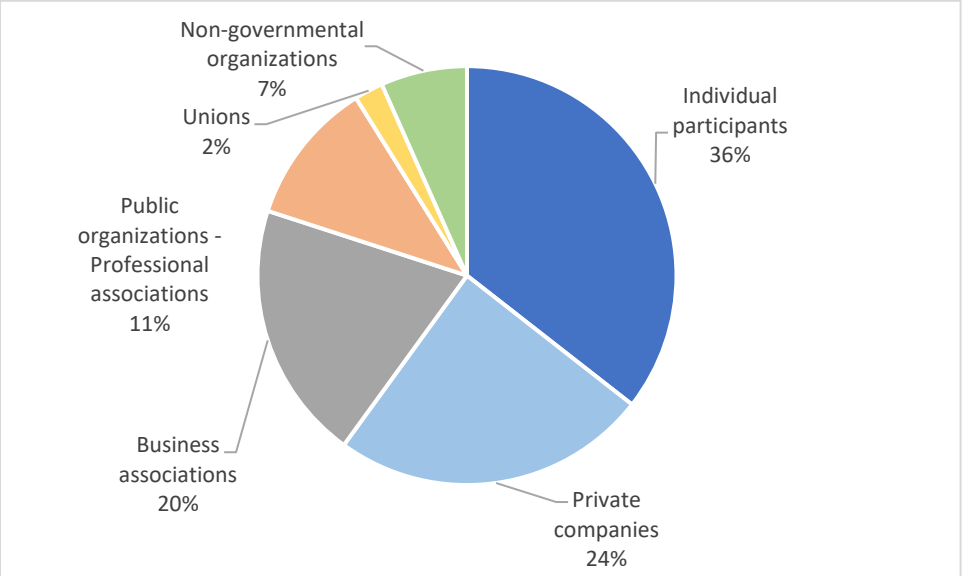

figure 1. Responses received according to the represented segments

Review of general objectives and digital targets

In general terms, participants in the consultation share a unanimous vision regarding the need to dedicate efforts to drive a digital transformation in which citizens can actively participate and benefit. This process is supported by initiatives promoting inclusive digital training, with a commitment to leaving no one behind, and relying on secure, efficient, and sustainable digital infrastructures that facilitate the transition to more environmentally friendly practices.

[10] The number of responses obtained represents a significant advancement in Spain's participation compared to the public consultation conducted by the European Commission on the Digital Compass in June-July 2021. The latter saw the participation of only 4 Spanish entities out of a total of 101 responses from all Member States. Available at: https://digital-strategy.ec.europa.eu/en/library/targeted-consultation-2030-digital-compass-european-way-digital-decade

Moreover, concerning the achievement of general objectives and digital targets, participants underscored the importance of initiatives aimed at achieving technological transformation through the promotion of citizens' digital literacy and the digital specialization of professionals, reinforced by the development of secure, resilient, efficient, and sustainable digital infrastructures. The significance of supporting businesses in their digital adaptation and incorporation of advanced technologies was also emphasized, along with the importance of having accessible, integrated, and user-friendly public services.

In the following three sections, the participants' main contributions are described in more detail.

Review of general objectives and digital goals

Participants highlight the need to simultaneously address the three general objectives of the Digital Decade: digital citizenship, digital leadership and sovereignty, and contribution to the ecological transition. Although no significant differences are observed in the effort to be made in all of them, they attach slightly greater importance to the need for a digitally skilled population, highly qualified digital professionals, and secure, resilient, efficient, and sustainable digital infrastructures.

Measures to achieve the general objective of the Digital Decade

A consensus is observed in the importance assigned to all measures:

- **Digital Citizenship**: measures such as **closing digital gaps and training in digital skills** are particularly valued. From the union sphere, attention is drawn to the importance of **mental health care due to potential unwanted impacts of new technologies**.
- **Leadership and Sovereignty**: emphasis is placed on the **importance given to the development of secure digital infrastructures and the strengthening of cybersecurity**. Union and non-governmental organizations express the importance of **training and human capital** to achieve this goal. Business associations highlight **the importance of participating in international frameworks** to developing alliances for technology and the digital economy.
- **Contribution to the Ecological Transition**: the **best-evaluated actions are the incentivization of the use of digital technologies to accelerate the green transition and the promotion of sustainable infrastructures**. Non-governmental organizations and individual participants point out the need for regulation of the lifespan of technological devices and their standardization.

Measures to achieve the digital goals for 2030 of the Digital Decade

The digital goals and measures highlighted by the participants in relation to the four main areas of action are presented below:

- **Digital skills**:
    - **80% of the population with basic digital skills: the measure focusing on the training of teachers, students, and the digitization of educational institutions is**

highlighted, with an emphasis on **caution regarding the digital education of younger individuals.**

- **Two million ICT specialists**: **the support for SMEs in their digital transformation, continued promotion of digital qualification programs in Vocational Education,** and attracting non-technical academic talent to the ICT sector are emphasized.
- **Gender convergence in ICT specialists:** The measure to **promote STEM vocations among girls, adolescents, and young people is highlighted**, and it is suggested to enhance the visibility of female talent, including local referents.

- **Digital Infrastructures:**

  - **100% coverage by gigabit and 5G networks in populated areas: priority is given to public support in areas where market failure exists**. From the private sector, the importance of promoting hybrid solutions (terrestrial and satellite) is emphasized, along with the encouragement of secure infrastructures.
  - **Semiconductor production**: emphasis is placed on supporting **training in microelectronics, investing in R&D, and in the promotion of intersectoral collaboration between chip producers and consumers**.
  - **Infrastructure for proximity nodes:** similar importance is given to both the development of **public aids to facilitate their implementation in rural areas** and the promotion of **solutions requiring edge-computing specifications.**
  - **Availability in the EU, no later than 2025 of the first quantum computer**: slight priority is given to the need for the creation **of training programs and support for the study and development of quantum algorithms**.

- **Digital transformación of businesses**:

  - **Both to ensure that 90% of SMEs achieve a basic level of digital intensity by 2030** and **that 75% of companies use advanced technologies (cloud computing, big data, and/or artificial intelligence)**, supporting companies in adopting these technologies and providing training within the companies is emphasized.
  - **In the growth of SMEs and unicorns**: measures to reduce **bureaucratic obstacles are highlighted**, and the importance of facilitating the flow of ideas between R&D and private investment funds is emphasized.

- **Digital transformación of Public Services**:

  - **100% accessible Public Services for businesses and citizens**: all measures hold similar importance, with a slight prioritization of initiatives promoting the use of clear language, improvement of accessibility, and access through a single point.
  - **Accessible medical records for all citizens**: the need for public healthcare medical records to contain a higher level of information is emphasized.
  - **At least 100% of citizens using a digital identification solution**: most highly regarded measure is the one related to obtaining this identification without the need to visiting the registration offices.

6.2 Participation in the development and deployment of the Spanish Digital Agenda

In the development of the Spanish Digital Agenda over 15 government ministries and public organizations were involved, along with more than 25 economic, business, and social agents, demonstrating a broad spectrum of input and support. This allowed for comprehensive discussions on various facets of the digital transition, enhancing the roadmap's inclusivity and effectiveness. The comments and contributions from these consultations were invaluable. They offered detailed insights into the practicalities of the digital transition, helping to fine-tune the approach. The feedback received actively shaped the digital agenda, making it a truly collaborative, representative document.

To facilitate the successful implementation of the initiatives, the Digital Spain Agenda adopted a governance model that ensures a multisectoral dialogue and participation from diverse relevant actors essential to the country's digital transition. For this purpose, in October 2020, the **Digital Transformation Advisory Council** was established as a collaborative body involving more than 80 both public and private sector stakeholders. Its role includes providing advice and aiding in the promotion of measures and initiatives under the Digital Spain Agenda. Furthermore, the council offers guidance in the formulation of public policy proposals across various domains, including telecommunications, digital infrastructures, audio-visual communication, Digitalisation of the economy, government and society, digital services promotion, and regulation, as well as fostering a digital economy and society.

The **Digital Transformation Advisory Council** convenes for a plenary session at least once a year, and it also contains two standing committees that address the respective activities related to the different pillars and measures of the Digital Spain Agenda:

- Permanent Committee on Telecommunications, Digital Infrastructure, Digital Connectivity, and the Audio-visual Sector
- Permanent Committee on Digitalizing the Economy, Administration, and Society

The first plenary meeting held of the Digital Transformation Advisory Council was on October 13, 2020. This meeting meant the constitution of the council where more than 50 social and economic agents related to digital transformation participated among different associations, foundations, federations, schools, and unions. At this meeting, the President of the Government recalled that digital transformation is one of the four cross-cutting axes of the Recovery, Transformation and Resilience Plan, and the roadmap and possible implementation challenges were discussed.

Subsequently, on April 21, 2021, the second plenary meeting of the Digital Transformation Advisory Council was chaired by the then Second Vice President and Minister of Economic Affairs and Digital Transformation, Nadia Calviño. At this meeting, the members of the plenary session were informed about the evolution of the different initiatives related to digital transformation and, in particular, about the progress of the Recovery, Transformation and Resilience Plan. Subsequently, the members of the plenary session gave their feedback on the evolution.

On February 17, 2023, another plenary meeting took place, where First Vice President Nadia Calviño chaired the meeting to report on the progress of the Digital Spain Agenda, presenting an executive report to the council where the investments of the Recovery Plan are verified in the digital realm. Specifically, the Vice President reported that the Digital Spain Agenda has already committed 80% of the total budget credits allocated in the last two years, 3,157 million euros in 2021 and 2,659 million

euros in 2022, out of a total of 7,364 million euros. In order to guarantee the execution of 100% of the funds, the credit balances have been incorporated into the 2023 budget. In total, the Digital Transformation Advisory Council has met five times to the date.

Regarding the governance structure of Digital Spain Agenda, the Ministry of Economic Affairs and Digital Transformation plays a vital role in driving and cooperating with the stakeholders responsible for implementing the sectoral plans that materialize many of the measures of the Agenda. These include, but are not limited to, the Plan for Connectivity and Digital Infrastructures, the Strategy for Advancing 5G Technology, the National Plan for Digital Competencies, and the National Strategy for Artificial Intelligence. An example of this cooperation are the meetings that the Spanish Secretary of State for Digitalisation and Artificial Intelligence (SEDIA) has held with interest groups such as women's organizations, entities in the field of culture, digital associations, engineering colleges, social agents or business associations to find out their vision of the challenges and priorities for the implementation.

6.3 Participation of advisory bodies and expert groups of specific sectors

Advisory bodies and expert groups with key public and private representatives in specific sectors have also been set up to guide the digital transformation process in those areas, such as the Artificial Intelligence Advisory Council, the Digital Rights Expert Group, the Young Digital Council, the Expert Groups of the PERTE, the Council for Scientific, Technological and Innovation Policy, or the Observatory of Commerce 4.0.

The **Artificial Intelligence Advisory Council** created and published in the State Official Gazette (BOE) number 199, of July 22, 2020, is a consultative body that provides independent advice and recommendations on measures to ensure the safe and ethical use of Artificial Intelligence. The presidency of this council corresponds to the person in charge of the Ministry of Economic Affairs and Digital Transformation and the Vice-Presidency to the person in charge of the Secretary of State for Digitization and Artificial Intelligence. This body is also composed of internationally renowned Spanish experts in the field who contribute to the completion and implementation of the National Strategy for Artificial Intelligence. The members of the Advisory Council analyse the implications of these disruptive technologies in various areas, such as business, administration, the future of work, protection of fundamental rights, data management, the fight against discrimination, and the elimination of social disparities. Regarding the Artificial Intelligence Advisory Council, its first meeting took place on July 20, 2020, where the government presented the said council. On March 6, 2023, the third meeting of the council took place. In this meeting chaired by the First Vice President and Minister of Economic Affairs and Digital Transformation, Nadia Calviño and the participation of the Secretary of State for Digitization and Artificial Intelligence, Carme Artigas, the council discussed the progress in the development of the National Strategy for Artificial Intelligence (ENIA). The First Vice President pointed out some of the main initiatives that are already a reality and show the development of the ENIA, such as the start-up of Quantum Spain, the signing of the protocol for the creation of the National Centre for Neurotechnology, Spain Neurotech, the deployment of the PERTE of the New Language Economy, the launch of 16 chairs between universities and companies for Artificial Intelligence, the next call for the creation of the Spanish Network of Excellence in Artificial Intelligence and the 105 million euros allocated to promote greater adoption of AI in value chains.

Subsequently, the relevant feedback was received as well as independent recommendations on the measures to be adopted to guarantee a safe and ethical use of Artificial Intelligence.

The **Digital Rights Expert Group** is made up of prominent jurists, representatives of users and Internet users or cybersecurity consultants, among other profiles, with the participation of the ministries of Justice and the Presidency, Relations with the Courts and Democratic Memory, and the Spanish Agency for Data Protection, integrating not only government representatives, but also of members of the academic community and civil society with extensive experience in the protection of fundamental rights in the digital sphere. The Digital Rights Expert Group has had 12 meetings since its constitution on June 15, 2020. These meetings were part of a process that concluded with the elaboration of the Charter of Digital Rights. Simultaneously with the work of the expert group, an open consultation was carried out to gather feedback from the citizenry and relevant stakeholders. In this process, more than 200 responses from citizens, social organizations and companies were received, which were taken into consideration when preparing the Charter of Digital Rights.

The **Young Digital Council** is a collegiate body which advises the Ministry of Economic Affairs and Digital Transformation in the design, monitoring, and evaluation of Digital Transformation policies aimed at generating new opportunities for young people and addressing the real challenges and problems of this group. The council is composed of a maximum of 25 positions chosen from young people between the ages of 16 and 25, representing different sectors such as education, business, science and innovation, social integration, and culture, among others.

The **PERTEs (Strategic Projects for Economic Recovery and Transformation) have also designated their own expert groups** comprising prominent figures and key stakeholders in the respective areas. Examples of these groups are the Advisory Council of the PERTE of the Language, made up of 36 members from institutions related to the promotion of the language -including three members from each of the co-official languages of Spain- and representatives from the fields of culture, performing arts, the audio-visual world, science and technology, or the CHIP Strategic Project Expert Group (PERTE) which is made up of 11 people of recognized prestige in the microelectronics and semiconductors sector worldwide.

Regarding the **Advisory Council of the PERTE of the Language**, its first meeting took place on June 28, 2022, where it was presented. In this meeting, the objective of PERTE was established, making Spain the central node of artificial intelligence in Spanish and that the systems integrate the wealth of our co-official languages for the benefit of the economy and, above all, of the people. Likewise, it was explained how the first step of this PERTE was taken with the launch of the Global Observatory of Spanish, based in La Rioja.

The second meeting, held on December 16, 2022, took place in a blended manner and had the participation of several members of the Council, such as the director of the Royal Spanish Academy, Santiago Muñoz, the president of the Royal Board of the National Library, Daniel Fernández, the director of the National Cancer Research Centre, María Blasco, the writer Lorenzo Silva and the professor of Spanish Language at the University of Barcelona, Estrella Montolío, among others. In this meeting, the good rhythm in the deployment of this strategic project was valued, which, since its creation last March, has managed to implement an innovative and transformative strategy for both Spanish and the co-official languages in the digital, scientific field or culture. An investment of 2.5 million euros was also announced to the International Centre for Spanish of the University of

Salamanca (CIEUSAL) for the promotion of language teaching that allows opening up to new markets and enables the promotion of cutting-edge digitization of learning methods.

The third meeting of the council took place on July 10, 2023, in which it was unanimously agreed to take advantage of the existence of PERTE to promote all initiatives related to clear, inclusive and accessible language that exist today. Following the feedback logic of all the meetings, the experts of the Advisory Council addressed the need to deepen, combine and energize all the projects in terms of clear, inclusive and accessible language. These are projects from different fields (Justice, Education, Culture) that facilitate understanding through a language free of barriers due to age, academic training, or cultural conditioning. The First Vice President and Minister of Economic Affairs and Digital Transformation, Nadia Calviño, explained to the members of the Advisory Council the projects that will be financed with the 401 million euros of credits corresponding to this PERTE that have been included in the Addendum to the Recovery Plan proposal to the European Commission. For her part, the special commissioner for the PERTE of the New Language Economy Cristina Gallach highlighted the development and good execution of the funds assigned to the PERTE, noting that the different ministries involved are rigorously complying with the execution of the funds, in addition, she announced that the inter-ministerial working group will soon be convened to advance the deployment and monitoring of the measures of this PERTE.

Likewise, the **Council for Scientific, Technological and Innovation Policy**, is a crucial body for the advancement of scientific and technological progress in Spain. Affiliated with the Ministry of Science and Innovation, the Council fosters cooperation and coordination in scientific and technical research between the State and the Autonomous Communities. Among its main responsibilities is the collaboration with the Ministry of Science and Innovation in the development of proposals related to the Spanish Strategy for Science, Technology and Innovation. Moreover, in conjunction with the relevant collegial bodies, it implements mechanisms for the evaluation of this strategy, prioritizing indicators that reflect the quality of the outcomes and their impact on the country's economic growth. The Technological and Innovation Policy Council has met thirteen times since its creation, and six times since 2021.

Moreover, the **4.0 Trade Observatory** has also been of great help to the consultative process on the digital transformation of the trade sector. This observatory is a consultative, advisory, and collaborative working group between the General Administration of the State and the representative organizations of commerce and the digital economy, including the representation of digital payment methods. It was created by an Agreement of the Council of Ministers on October 11, 2018 (BOE 279 of November 19, 2018), and it is assigned to the Ministry of Industry, Commerce and Tourism, through the State Secretariat for Commerce. The goal of the 4.0 Trade Observatory is to support sector actors in understanding the dynamics of the digital transformation of commerce, to face challenges and guide the formulation of the most appropriate strategies.

Within the framework of the Observatory of Commerce 4.0, two meetings have been held to date, the first on December 16, 2020, where the Minister of Industry, Commerce and Tourism, Reyes Maroto, and the Secretary of State for Commerce, Xiana Méndez, participated together with the associations dedicated to retail trade to present the "Recovery, Transformation and Resilience Plan of the Government of Spain" and, in particular, the measures to be developed in support of the sector's competitiveness.

6.4 Mechanism of regional and local authoritie's participation for the Recovery, Transformation and Resilience Plan

In order to complete the Stakeholder feedback process there have also been sectoral commissions involving regional and local authorities, such as the **Sectoral Conference of the Recovery, Transformation and Resilience Plan** or the **Sectoral Conference for Digital Transformation**.

The **Sectoral Conference of the Recovery, Transformation and Resilience Plan** is a coordination body between the State and the Autonomous Communities and Autonomous Cities to establish ways of cooperation in the implementation of European funds from the Recovery and Resilience Mechanism (MRR). The conference is constituted by the Minister of Finance, presides over it, and by the competent counsellors for the matter of each of the autonomous communities and the autonomous cities of Ceuta and Melilla.

Regarding the Sectoral Conference of the Recovery, Transformation and Resilience Plan, a first meeting took place on August 2, 2021, which was chaired by the Minister of Finance and Public Function, María Jesús Montero. During this meeting, a follow-up and evaluation of the implementation of the European funds received was carried out.

During the meeting, the progress made in the development of the Recovery Plan was discussed. At the same time, those to follow in the deployment of the control and monitoring elements required by the European Commission were announced to receive resources -up to 140,000 million in six years- that should serve to lay the foundations of the Spain of the future.

There was also a discussion on the approval of the distribution of funds for the modernization and digitization of the Spanish university system and for the energy rehabilitation of buildings.

The second meeting held on April 4, 2021, served for the Government to formally present to the Autonomous Communities, Autonomous Cities and the Spanish Federation of Municipalities and Provinces (FEMP), the draft Recovery, Transformation and Resilience Plan of Spain. The Secretary of State for Budgets and Expenses, María José Gualda, the General Secretary for European Funds, Mercedes Caballero, the regional counsellors responsible for European funds and Abel Caballero, the President of the Spanish Federation of Municipalities and Provinces (FEMP), participated in this meeting.

During this meeting, the Treasury conveyed the fundamental role of the Autonomous Communities and Local Entities for the fulfilment of the objectives and milestones included in the Plan, as well as their participation in the management, information, and monitoring of the measures. In this sense, it was established the preparation of a management report that will reflect the degree of progress in meeting the milestones and objectives of the different reforms and investments. It will also provide information on the degree of budget execution of each component of the Recovery Plan.

On the other hand, the **Sectorial Conference for Digital Transformation** involves representatives from all autonomous communities, the autonomous cities of Ceuta and Melilla, and the Spanish Federation of Municipalities and Provinces (FEMP) to jointly govern the digital transformation process. This Sectorial Conference has held various meetings of great importance, as for example, the one conducted on May 27, 2021, chaired by the Vice President and Minister of Economic Affairs and

Digital Transformation, Nadia Calviño, that analysed key actions regarding digital transformation incorporated into the Recovery, Transformation, and Resilience Plan. This encompassed a range of areas such as modernization of Public Administrations, Industry 4.0, Education, Training for Employment, the Cybersecurity Shock Plan, Digital Connectivity, and Digital Competencies. The Autonomous Communities and Local Entities actively participated in the execution of these actions. Their involvement ranged from defining these actions, directly executing certain measures, managing aid and grants associated with territorialized funds, and contributing to the submission of projects for general calls. This reiterates the importance we place on extensive consultation and stakeholder involvement in our digital transformation roadmap.

Other bodies such as the Interministerial Commissions have also joined the process. Said commissions, which include the participation of different departments and public ministerial entities of the General State Administration, are convened as necessary. While the coordination with other Administrations, Autonomous Communities and Local Entities in relation to the execution of Digital Spain, is carried out through the corresponding Sectoral Conferences previously mentioned.

These activities not only demonstrate the scope of stakeholder involvement but also reflect how their feedback and perspectives have been considered in designing the roadmap, ensuring a comprehensive and all-inclusive approach towards digital transformation.

Section 7: Overall impact and conclusion

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This section concludes by presenting the expected overall impact of all policies, measures (including regulatory measures) and actions that are foreseen to help achieve the general objectives and the digital targets and more generally to a successful digital transformation by 2030. A short overview or synthesis of the expected impact of all measures, read across digital targets, general objectives and digital rights and principles is provided.

The progress achieved to date by Spain is the result of an unprecedented collective effort. All the digital reforms and investments in the three years since the approval of the Digital Spain agenda have required intense, coordinated and committed work by the teams of numerous ministerial departments and public bodies, the departments of the Autonomous Communities, local councils, private companies, sectoral business groups, trade unions, civil society agents, etc. Visible examples of this unprecedented cooperation are measures such as the Law for Start-ups, approved with the consensus of the majority of political parties and sectoral representatives, or the RETECH initiative, through which the Autonomous Communities are cooperating with each other in technological specialisation projects.

While these efforts are already delivering immediate results, the final results and impact will reach its tipping point from 2026 onwards and will serve as a basis for growth and prosperity for future generations. The investments and reforms initiated since 2020 are accelerating a process of structural modernisation that is already materialising in major national and international investment projects, increasing and attracting talent in the new digital economy, improving productivity and launching strategic projects that would have been unfeasible in the past, underpinning the EU's strategic autonomy in a very complex international landscape characterised by rapid change and technological competition.

Digital transformation will be a key lever for business development and economic modernisation, but also will be instrumental in promoting equal opportunities and fostering social and territorial cohesion. Spain is promoting a humanist digitalisation that places people at the centre to leave no one behind and to guarantee the principles, values and rights that represent the society we have built. The measures already deployed since the launch of Digital Spain have been instrumental in achieving more intense and sustained economic growth, generating quality employment, enhancing productivity and contributing to the reduction of the multiple digital divides. These efforts are contributing to overall, prosperity and well-being for citizens throughout the country.

In the area of connectivity, the measures implemented thus so far have positioned Spain as a frontrunner, coming close to meeting the goals set out in the Digital Decade. The large-scale infrastructure rollout currently underway will give a decisive boost to achieving the goals of the Digital Decade, closing the urban-rural divide and serving as a tool to confront the demographic challenge and mitigate inequality. Through the implementation of the UNICO Broadband and UNICO Rural Demand programmes, the digital divide in fixed connectivity will be bridged, ensuring that 100% of Spain is connected via ultrafast broadband.

Additionally, the 5G deployment programmes will extend 5G technologies to rural areas, enabling citizens in these areas to deepen the digital transformation of important and critical economic sectors

such as agriculture and tourism, while at the same time providing new cultural and social opportunities for these territories.

Along with the deployment of these infrastructures, innovative programmes in advanced technologies are being developed to place Spain at the forefront of technological development, while strengthening sovereignty and strategic autonomy. These programmes encompass the promotion of innovation ecosystems in 5G and 6G, research into quantum computing, strengthening cybersecurity capabilities or boosting the microchip industry. All of these programmes foster public-private collaboration and cooperation between large companies, research organisations and SMEs to reinforce the country's scientific capabilities and improve the knowledge base and technology of Spanish companies. By 2030, these programmes are expected to increase the country's resilience and competitiveness by contributing to both EU's digital and technological autonomy, reducing dependence on key materials, technologies and digital services.

People's digital skills have also received a strong boost since the launch of the Spain Digital Agenda, positioning Spain favourably towards the 2030 target of 80% of the population with basic digital skills. Thanks to the implementation of the National Digital Skills Plan, 686 688 people have already been trained, with 180 137 people in the process of training and 1.6 billion already spent on training initiatives (plus an additional 2008 million € already committed to further training). Now, measures will be implemented specifically targeted towards population segments with lower levels of digital competencies, with the aim of impacting at least 200 000 individuals at risk of digital exclusion. In addition to this, the Generation D Pact is achieving the commitment of public, private and third sector entities to digital skills training, with more than 140 members adhering to the Pact and 750 training initiatives aggregated in the Generation D Portal (which will evolve into a challenge-based learning ecosystem).

In the field of ICT specialists, Spain is undertaking structural reforms to increase the number of ICT graduates as well as investing in the reskilling and upskilling of the labour force. Through the Plan FP Digital, a profound reform is being carried out in vocational education, increasing the offer of qualifications linked to ICT specialists, in order to increase the number of professionals through this educational pathway. Thanks to the profound changes being undertaken in the education system, it is expected that from 2026 onwards there will be an organic and exponential growth in the number of ICT specialists, which in turn will drive the advanced digitalisation of companies.

In order to boost the modernisation process of the economy, special support is being given to the digitisation of small and medium-sized enterprises and the self-employed, which represent 98% of the productive fabric and more than half of the country's employment. The digitisation of their management processes and tools and relations with customers, suppliers and other partners is a fundamental lever to improve their productivity and competitiveness, to foster their growth and to make them more resilient for the future. In order to ensure a truly transformative process in these companies, which increases productivity and quality employment, aid programmes are being implemented in a triple dimension: (i) purchase of digitisation services to change the functioning of the company, (ii) training of entrepreneurs, employees and incorporation of "agents of change" to promote the modernisation of processes, (iii) and support for cooperation and innovation networks, to take advantage of synergies (through cluster programmes, digital innovation hubs, RETECH programme, etc.).

Among these programmes, it is worth highlighting the extraordinary reception of the Digital Kit programme, an emblematic initiative that has already become the most requested aid programme in the history of Spain, with more than 62,000 beneficiary companies throughout the country, with all types of businesses and impact on all sectors of the economy, from food, health, construction or textiles. Given the impact the programme is having, the Addendum to the Recovery Plan includes its extension to SMEs with more than 50 employees. This extension will allow companies belonging to this segment to access vouchers ranging from 25000 to 29000 euros to digitise their processes, and to receive advice and guidance from the Acelera Pyme service on how to digitise. Given that many of the digital solutions in the Digital Kit programme include big data, cloud or artificial intelligence components, it is expected that Spain will have a significant increase in the business digitisation indicators by 2026 (when the implementation of the programme will have reached its zenith), after which organic growth in SME digitisation will take place.

Progress is also being made in the adoption of disruptive technologies such as AI or Big Data in the value chains, which will serve to increase both the competitiveness and sustainability of productive sectors. Whilst Spain is currently performing at around the EU average in this field, growth is also anticipated in the medium term, which will coincide with the increase in the number of digital experts. The adoption of advanced technologies in strategic sectors has the potential to contribute to the ecological transition and to generate a tractor effect on employment, economic growth, productivity and innovation in businesses and in society as a whole. Programmes such as the RETECH Data Space Programme, the programme for the Integration of AI in value chains, or the AI R&D Missions are facilitating the transformation of sectors such as tourism, agri-food, mobility or health, applying solutions specifically designed for these sectors with a focus on addressing social and environmental challenges. In addition, programmes such as the National Green Algorithms Programme or the PERTE Plan for the Digitalisation of the Water Cycle optimise the potential of these technologies to drive the green transition or reduce water consumption.

While these disruptive technologies offer many opportunities, they also present significant risks for individuals and for society as a whole, and that is why Spain is fostering an approach which ensures ethical development and use, in line with EU values. Spain is the first EU country to have an Artificial Intelligence Supervisory Agency and is developing with the European Commission the first pilot (sandbox) of Artificial Intelligence regulation in the EU, to jointly define best practices when implementing future European regulation in this field.

The digital transformation of the economy and society is being accompanied by the digital transformation of public administrations, in order to facilitate the completion of bureaucratic procedures and to simplify and increase the accessibility of the relationship between citizens and businesses with the administration. In this area of digital public services, Spain performs well compared to the European average and is on track to contribute to the goals defined in the Digital Decade. To make further progress in the digitisation of public administrations numerous measures are being undertaken along five lines of action: improving citizen service, smart operations, data governance, digital infrastructures and cybersecurity. These measures are being implemented across all departments and levels of public administration, transforming service delivery in such essential areas as justice or public employment services. The Autonomous Communities have 95 projects underway along these same lines, with digitalisation extending to the level closest to citizens: the Local

Entities, Provincial Councils, and Island Councils with more than 830 projects. In addition, more than 974 million euros have been allocated for the digitisation of ministries in the fields of justice (410 million €), employment (224 million €), inclusion, social security and migration (165 million €), foreign affairs and the European Union (110 million €), defense (35 million €), agriculture (20 million €), and consumer affairs (10 million €), with more than 172 projects currently underway.

One of the key measures implemented is the My Citizen Folder application, which has brought about a paradigm shift in the way of accessing information on public services, as it brings together in a single point the data of different administrations in the country for quick consultation by any person.

Through its dedicated efforts towards digitalisation, Spain aims to assume leadership in global discussions on digital transformation, thereby contributing towards the European Union's vision as enshrined in the Digital Decade. This leadership role is already being assumed by Spain in different international fora, as evidenced by initiatives such as the holding of the OECD Digital Economy Ministerial Conference in the Canary Islands - which concluded with the signing of a significant global agreement, the Declaration for a Reliable, Inclusive and Sustainable Digital Future – or the various initiatives to enhance the collaboration between Latin America and the European Union in the digital realm, in particular the promotion of the EU-Latin America and Caribbean Digital Alliance.

Furthermore, the Spanish Presidency of the European Union is facilitating the implementation of key components of the European model for digital transformation, including the Artificial Intelligence Regulation, the Cyber-Resilience Act, the Cybersolidarity Act, the Interoperable Europe Act, and the Gigabit Infrastructure Act.

To further boost the process of digital transformation between now and 2030, Spain will extend and strengthen the deployment of the Digital Spain agenda, with the help of the Addendum to the Recovery Plan. The Addendum doubles the total investment in Digitalisation to 40.4 billion € (adding an extra digital contribution of 20.7 billion € with 18 new measures). The expected impact of Digital Spain is enhanced by these new measures, which include support for the entire value chain of advanced microprocessors, from R&D to manufacturing; promoting the expansion of technology start-ups; developing a Spanish Natural Processing Language environment using computer science and artificial intelligence to assist SMEs; strengthening cybersecurity and public administration; or boosting the audio-visual sector.

Thanks to this determined commitment towards a humanist digital transformation process, Spain strives to be at the forefront of the European Union, providing a substantial contribution towards the targets and objectives of the Digital Decade.