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Challenges encountered in the use of electronic services in the public administration from EU Member States

COMPARATIVE STUDY

ACZ Consulting
Strategies and beyond

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Executive summary

The objective of this study is to explore the main challenges faced in the use of e-services in the different EU Member States, which required the analysis of development and implementation models of electronic public services, as well as of the implemented solutions and of the good practices that could be taken over and adapted to the digitization process of public administration.

In this respect, a first methodological step focused on the selection of EU Member States which are among the countries with the most important performance in the field of e-governance, according to the European Commission's monitoring mechanism (e-Government Benchmark), such as Malta, Portugal and the Netherlands. At the same time, considering composite indicators such as digital Competencies of populations, Use of Information and communication technology, Quality of governance (umbrella type indicator including quality of regulation, respect for the rule of law, efficiency of governance, perception of corruption in the public sector), Level of openness of governance (umbrella indicator including the data availability values, freedom of expression and accountability of public actors), Connectivity (broadband availability) and Presence of digital solutions in the private sector, six EU Member States were selected (Belgium, Ireland, Spain, Italy, France and the United Kingdom) aiming to ensure a wide range of national contexts and performances. Taking into consideration the models of development of electronic public services in these Member States, the institutional framework, the strategic one, the main e-government platforms available and the general national contexts were analysed, the purpose of the chapter dedicated to presenting this information was to establish a clearer view of the common points and the specific solutions adopted to ensure easier access for citizens and businesses to public services.

At the same time, with a view to disseminating solutions that have proved their effectiveness at national level, the study has also followed the presentation of good practice cases in Denmark (exploring the case of the latest generation NgDP digital post), Croatia (researching the case of the integrated platform e-Citizens), Italy (the example of the platform for database management and the provision of electronic services by the Italian Chambers of Commerce), Hungary (being explored the case of "Service Bus", the Hungarian public administration platform to ensure interoperability between national databases/registers and various IT systems specific to the public administration, in different areas of activity) and France (the case of MAREVA 2 application appraising the opportunity and added value of IT&C projects). Each of the solutions presented considered different key aspects (ranging from the need to ensure optimal interoperability, the need to facilitate coherent and transparent communication between authorities and citizens, the need to provide an objective assessment of possible large-scale investment projects).

The methodology used to address the research objective of the study was based on both qualitative and quantitative methods in order to identify the perspectives of the different EU Member States on the major challenges encountered in the provision and use of electronic services. In this respect, a questionnaire composed of 17 questions focusing on the institutional and regulatory framework in the field of e-government, the use of electronic public services, the difficulties encountered in the use of e-public services and the use of electronic public services and the measures envisaged or

implemented to address these issues were applied among the representatives of the European Public Administration Network (EUPAN). Based on the twenty responses received as well as on the views reflected and collected in the EUPAN meetings at the Working Group level, respectively the General Directors' meeting organized during Romania's holding of the rotating presidency of the Council of the European Union the most important challenges faced by European public administrations in the delivery and use of electronic services were identified and synthesized. As regards the analysis of electronic services development models and ICT solutions designed to address needs (e.g. ensuring a high degree of interoperability, streamlining communication between citizens and the public administration, etc.), this was done in based on specialised literature analysis and review.

At the level of development models, for selected countries in the study, it was noted that eGovernment policy and its implementation are generally the responsibility of central government structures. In general, national strategies for digitization of public administrations have as main objectives to ensure a higher level of transparency of government activities, to support citizens' trust in public institutions by streamlining the delivery of public services and ensuring inter-institutional cooperation.

The main challenges identified in the study on the use of e-public services included the degree of lack of information amongst the populations about the availability of these services in their electronic version, the lack of minimum skills for accessing them as such, and the low trust of potential users concerning the management of personal data.

From the perspective of the analysis of the characteristics of the electronic public services, the main identified barriers were the difficulty of navigation on public electronic platforms (in the sense of the absence of an intuitive character of platforms), the dispersion of public information along various public websites and the absence of e-identification to facilitate faster and safer access to public electronic platforms.

At the level of the public administrations, the main barriers identified in the development and use of electronic public services included the lack of specialized human resources, the lack of financial resources for strategic projects, legislative barriers, as well as the organizational nature of administrations that perpetuate an insular approach to common problems and needs (or the so-called "administrative silos").

As regards to the solutions implemented, their diversity and volume indicate not only a good understanding of citizens' needs, but also a clear commitment to improving performance in delivering public services.

Introduction

The e-governance concept

The concept of e-governance has become an implicit component of public sector reform, being assimilated as a set of tools designed to increase the efficiency of the services provided by public administrations and to improve the transparency of governance.

According to the definition used by the World Bank, e-governance represents the use by government agencies of the technological solutions available to transform relations with citizens, firms and other public entities. These technologies can help achieve objectives such as better delivery of services to citizens, more effective interaction with business entities, improved access to public information or more efficient public management[1]. But the challenge of e-governance is not technological but rather a challenge to use existing technologies to increase the capacities of public service delivery by institutions, while contributing to improving the quality of life of citizens' representatives by redefining the relationship between them and governments[2].

The use of digital technologies, anchored in a number of appropriate principles and standards, can place citizens at the heart of digital government's approach as direct beneficiaries of reducing administrative burdens and increasing institutional transparency. In this regard, a relevant aspect is portrayed by a recent study that indicated that 91% of services provided by local authorities at city level were improved and streamlined through digitization, and 68% of data collected using digitized services were used in continuous improvement of services and decision-making[3].

Mentions regarding the relevant European legislation

At European Union level, the most important initiatives that have led efforts to modernize the public sector are the Action Plan for e-Governance 2016-2020 and the European Commission Communication on the European Strategy for a Single Digital Market, the principles of which have been confirmed by the Declaration of in Tallinn on eGovernment (2017). Thus, at the level of the Action Plan, the vision underlying the common document is that, by 2020, public administrations and public institutions in the European Union should be open, efficient and inclusive, offering cross-border, personalized, user-friendly and comprehensive digital public services to all citizens and all EU

[1] The World Bank (2012): e-Governments, available at: http://documents.worldbank.org/curated/en/317081468164642250/The-e-government-handbook-for-developing-countries-a-project-of-InfoDev-and-the-Center-for-Democracy-and-Technology.

[2] V. Kumar, B. Mukerji, I. Butt, A. Persaud (2007): „Factors for Successful e-Government Adoption: A Conceptual framework", Electronic Journal of e-Government, Vol. 5, Nr. 1, pp. 63-76, p. 63.

[3] ESPON (2017): Policy Brief. The Territorial and Urban Dimensions of the Digital Transition of Public Services (ESPON, Luxemburg), p. 4.

business entities. In order to achieve this overall objective, the Plan sets out a set of principles to underpin any e-governance development initiative:

- The Digital by default Principle - the principle that administrations provide digital services as a preferred option (while keeping traditional channels available to ensure access for citizens who do not have access to digital variants / prefer them);
- The one-time principle - aiming for public administrations to ensure that citizens and business entities provide the same information once to public authorities. In case of the acceptance of internal data re-use, public authorities would share this data, reducing the administrative burden on citizens;
- The Inclusion and Access Principle - aimed at developing e-services so that they are inclusive by design and respond to specific needs such as those of people with disabilities;
- The Openness and Transparency Principle - addressing the need to share information between different public institutions and citizens so that they can control their own data, be able to make corrections when needed and monitor administrative processes involved. To this end, there is a need for better involvement of stakeholders in building and developing digital public services;
- The cross-border implicitly principle - addressing the need for public authorities to develop cross-border digital public services to facilitate mobility within the Single Market;
- Interoperability principle by default - addressing the need to develop electronic services that are functional throughout the Single Market and overcome the insular approach of different public institutions;
- The Trust and Security Principle - aimed at developing initiatives that go beyond just compliance with the legal framework on personal data protection and online security and which integrates these elements from the development phase.

Through the Tallinn Declaration on e-Governance, the representatives of the EU Member States reiterated their commitment to the eGovernment Action Plan 2016-2020 as well as to the European Interoperability[4] Framework which sets out how to develop interoperable digital public services. But beyond the general framework set by means of political documents, the main objectives stated at their level have been reflected over time at the legislative level through:

- the adoption of the eIDAS[5] Regulation, based on which the legal framework for cross-border electronic identification and trust services for electronic transactions (such as electronic signature, portal authentication, etc.) has been established,

[4] The new European Framework on Interoperability is an integral part of the Communication of the European Commission no. COM (2017) 134, being adopted in 2017 and can be accessed at the address: https://ec.europa.eu/isa2/sites/isa/files/eif_brochure_final.pdf.

[5] Regulation no. 910/2014 of the European Parliament and of the Council on electronic identification and reliable services for electronic transactions in the internal market and repealing Directive 1999/93 / EC, available at: https://eur-lex.europa.eu/legal-content/RO/TXT/HTML/?uri=CELEX:32014R0910&from=EN.

- by adopting the Single Digital Portal[6] Regulation aimed at facilitating access for EU citizens and businesses to information, administrative procedures and national assistance services needed to become active at the level of other EU Member States vis-à-vis residence;
- by adopting the Directive on the re-use of Public Sector Information[7] (and its subsequent modifications) on the basis of which the conditions under which data held by public institutions can be used have been defined[8].

As regards the trends followed by Member States in the near future with regard to the digitization strategies of their own public administrations, the conclusions of the EUPAN Working Group Meetings (held April 8-9, 2019, during the holding by Romania of the presidency of the Council of the European Union), respectively at the level of the Directors General (held on 3-4 June 2019). Thus, as regards the use of emerging technologies such as Artificial Intelligence (AI) and blockchain to facilitate effective public service provision as well as common issues and solutions, a number of relevant remarks have been distinguished:

- Implementation of AI solutions can not only help improve administrative efficiency but can also increase citizens' confidence in the objectivity and neutrality of procedures based on a series of algorithms. At the same time, the implementation of such modern solutions does not address inherent problems such as the need for interaction (of the human factor in the administrative process) between users and providers of public services. At the same time, the increase in the complexity of the technologies involved in the provision of services will also imply the need to attract highly qualified human resources, the role of the public administration thus being more transient for intervention in cases where beneficiaries encounter problems in carrying out administrative procedures that cannot be solved on the basis of algorithms.
- Despite the expressed need of citizens for digitalised public administration and of the services they offer, there is also some degree of opposition in several EU Member States regarding the extension of electronic delivery of public services, as well as regarding the pace of this digitization process. This resistance is generated by multiple sources ranging from citizens' fears about abusive management of personal data and extensive individual monitoring (data sharing between state institutions offering the possibility of compiling a detailed and coherent image of the individual's life), additional costs generated by them (e.g. the need to acquire specialized ID readers to use the online authentication option), to the low degree of digital literacy of citizens that affect the efficiency of administrative digitization.

[6] Regulation no. 2018/1724 to the European Parliament and regarding the establishment of a single digital portal (gateway) to access information, procedures and support services and solutions to solve a problem and to amend Regulation (EU) no. 1024/2012, available at: https://eur-lex.europa.eu/legal-content/RO/TXT/HTML/?uri=CELEX:32018R1724&from=EN.

[7] Directive no. 2003/98 / EC on the re-use of public sector information, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013L0037&from=FR, as amended by the Directive no. 2013/37 / EU regarding the amendment of the Directive no. 2003/98 / EC on the re-use of public sector information, available at: https://eur-lex.europa.eu/legal-content/RO/TXT/?uri=CELEX%3A32013L0037.

[8] Directive no. 2019/1024 / EU on open data and re-use of public sector information, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32019L1024.

- At the level of public administrations, there are also phenomena of resistance to change, among the most important factors being the lack of funds or the division of existing and e-government resources at the level of the different institutions, the rooting of certain administrative procedures, the resilience of the personnel to changing the way of work and the island approach of institutions in data management.
- The tendency to simplify administrative processes to make it easier to navigate from mobile devices (such as tablets or smart phones) generally involves a compromise between safety and ease of use. In this respect, it is necessary to explore ways to mitigate data safety risks.

Some of these issues have also been reflected in the opinion poll applied through the EUPAN network at the level of representatives of eGovernment institutions, barriers at the level of which a series of solutions will be briefly presented at the level of the chapter addressing the difficulties in using public services.

Electronic services in the public administration from EU Member States

Malta

Institutional framework

Electronic Governance in Malta is under the responsibility of the Office of the Prime Minister (MPO). The development and implementation of eGovernment policy is coordinated at the central level. The strategy is developed with the involvement of all stakeholders, the services are provided by internal and trustworthy third parties, and implementation is done in a decentralized way through the Chief Information Officer at the Ministerial level (CIO).

In July 2008, the Malta National Information Technology Agency (MITA) was set up in Malta, which is subordinated to the Parliamentary Secretariat for Financial Services, Digital Economy and Innovation[9] of the Office of the Prime Minister (OPM). MITA is the main engine of Maltese information technology and government communications policy, programmes and initiatives. The role of MITA is to provide and implement the allocated programs as set out in the National Digital ICT Strategy 2014-2020. The Agency administers the implementation of IT programs within the Government to improve the delivery of public services and provides the necessary infrastructure for the delivery of ICT services to the Government. MITA is also responsible for promoting further use of ICT in society and the economy, and for promoting and delivering ICT education enhancing programs and the use of ICT as a learning tool.

From the point of view of institutional actors with a role in coordinating electronic services in Malta, an important role lies with the following institutions:

- The National Agency for Information Technology in Malta (MITA), which, besides its responsibilities in the field of e-government and policymaking, has the role of assisting the Government in transforming technological innovations into real governmental solutions. Its unique approach combines an innovative range of ICT services and management projects with focused delivery capabilities, using testing methodologies to help deliver government strategies and projects and maximize the benefits of technology investment.
- The Secretariat for Financial Services, Digital Economy and Innovation coordinates the design and implementation of eGovernment policies in the sense that both the Information Technology Agency (MITA) and Malta's Telecommunications Authority (MCA), the two executive electronics agencies, the portfolio of the Parliamentary Secretariat.
- The Digital Malta Management Committee allows for the management of dependencies and interactions among actors and the mitigation of risks associated with adopting different policies and implementing different actions.

As regards the institutional actors involved in the implementation of electronic services in Malta, the following institutions are noted:

[9] With role of Minister.

- MITA also has an important role to play in implementing IT programs in the Government to improve the delivery of public services and provide the infrastructure needed to deliver ICT services to the Government.
- The Maltese Communications Authority (MCA) is responsible for the direct implementation of actions to improve the external environment of ICT in Malta, eliminate the digital divide and promote e-commerce. MCA activity aims to facilitate the development of an environment favourable to investment, innovation, social inclusion and growth.
- Government departments and officially appointed bodies are responsible for the implementation of eGovernment projects and initiatives under their jurisdiction.

There is also the National Audit Office with responsibility for auditing electronic services in Malta, and the Office of the Commissioner for Information and Data Protection, which is responsible for ensuring that respect for the right of privacy to personal information is ensured.

Strategic framework

From the perspective of the strategic e-government framework, Malta has been the promoter of providing user-centric online public services to both citizens and businesses. The objective of the eGovernment unit is to bring together all the services of the Government of Malta in a simple and smooth context.

The "Gov.mt" national portal is the central source for all citizens' services and government information in general, while "BusinessFirst" is the national business portal. The government intends to implement an assertive eGovernment governance program aimed at transforming public services into catalysts for a more competitive economy for Malta.

The main objectives are included in the Digital Malta Strategy (2014-2020) and other programmatic documents presented below.

The Digital Malta Strategy (2014-2020) is the national ICT strategy for 2014-2020. Its purpose is to provide a vision for the country to thrive as a digitally active nation in all sectors of society. The strategy presents three strategic themes: digital citizen, digital business and digital government. The objectives of the strategy are that ICT becomes the main infrastructure underlying each economic activity. ICT should transform public administration into a more receptive one, encourage more sustainable use of natural resources, make the legal and regulatory environment more friendly, and the business environment and communities of SMEs and NGOs more connected. Above all, ICT should become a tool of empowerment for young entrepreneurs and an important source of impetus for creating more jobs and growth by the major and emerging economic sectors in Malta.

Government Service Strategy (mServices) 2017-2018: The Prime Minister's Office launched a Government Strategy on Services for the years 2017 and 2018 that describes the approach taken to introduce public services through mobile devices called mServices. Along with the public services already provided through the eGovernment program, the introduction of mServices services is intended to help achieve the government's goal of bringing public services closer to citizens on a 24/7 basis. Therefore, the vision of the mServices Government initiative is "Access to 24/7 public services from anywhere".

Malta's Cyber Security Strategy is the framework for the protection of IT systems, networks and information on the Internet as well as users of the services it provides, namely the Government, the private sector and civil society. The strategy is one of the elements of action proposed by the National Digital Strategy 2014-2020. The key principles of the National Cyber Security Strategy aim to reflect the various aspects of cyber security and the complex nature of the cyberspace.

Malta's Information Technology Agency (MITA) Strategy 2018-2020 outlines the purpose, priorities and direction the Agency will adopt for the next three years (2018-2020). The strategy sets out a vision whereby MITA becomes the "digital key to transforming the government". Since transformation requires more than just digital solutions, it is proposed that the Agency should support public administration in the transformation process by digitizing public services.

CONVErGE project: The Prime Minister of Malta officially launched the CONVErGE project through an investment of about 40 million euros, of which € 28.5 million are co-financed by the EU as part of the 2014-2020 ERDF. Through this project, the government will continue to strengthen public services by developing its ICT systems. The goal is to create a range of new services that offer more benefits to citizens and businesses. These funds will allow the development of new systems for different sectors, namely health, social services, justice, public finances, tourism, emergency systems and business sectors. In addition to developing new systems, funds will also be used to strengthen government IT infrastructure.

Main eGovernment platforms

The main e-government platforms operable in Malta are presented below.

The www.gov.mt platform[10] (Maltese Government Portal) is an institutional site that provides comprehensive and meaningful information on government ministries, policies and services. Government services and information are structured according to the needs of certain groups/events of citizens. A list of government sites from A to Z can be accessed through the portal. The gov.mt platform also offers access to a number of transactional services.

The servizz.gov platform[11] represents the single point of access for the general public, representing the central platform for all electronic services of the public administration. Through the website citizens can identify the services they want to access - grouped according to 12 categories / sectors of administrative activity. The platform also allows users to file administrative burden complaints during administrative procedures, provide suggestions and request information - processed through a user relationship management system and resolved at the relevant administrative level.

The eForms platform[12] is another key component in implementing eGovernment, which allows citizens to electronically submit applications related to government services. Forms are initially uploaded using the dedicated engine, which means that information can be collected once, thus reducing the administrative burden by electronically distributing forms within the Government by tracking progress and informing the applicant accordingly. This platform is also integrated with the government

[10] https://www.gov.mt/mt/Pages/home.aspx.
[11] https://servizz.gov.mt/en/Pages/default.aspx.
[12] https://eforms.identitymalta.com/.

electronic payment portal, ensuring that the services can be developed and deployed quickly to respond to the financial aspect of a transaction.

The data protection online platform[13] became operational in February 2006 and allows data protection officers in public services to access this portal through the government intranet portal.

The judicial platform in Malta[14] provides the public with extensive information resources on the Maltese judiciary, the judiciary, judges and magistrates, as well as the courts. It provides a news section and insight into the history of the judiciary system in Malta and on the important judicial processes that have taken place.

Local council platforms[15] are designed to provide holistic information about local government in Malta. There is a dedicated sub-portal that provides specific information to local councils and individual regional committees to help citizens easily access council services. The main objectives for creating this web portal are to encourage local councils to interact effectively with the community in general, and to provide international users with a valuable tool to better understand the geographical composition of the Maltese Islands as well as the peculiarities prevailing in each locality. The portal also promotes the benefits of standardization, opening locality-based prioritization and differentiation channels.

National Context

Regarding the national context of eGovernment performance, Malta's interoperability levels are fully correlated with those at European level and address administrative processes, a common taxonomy and semantic interoperability communities, and the use of formalized specifications to ensure interoperability technical.

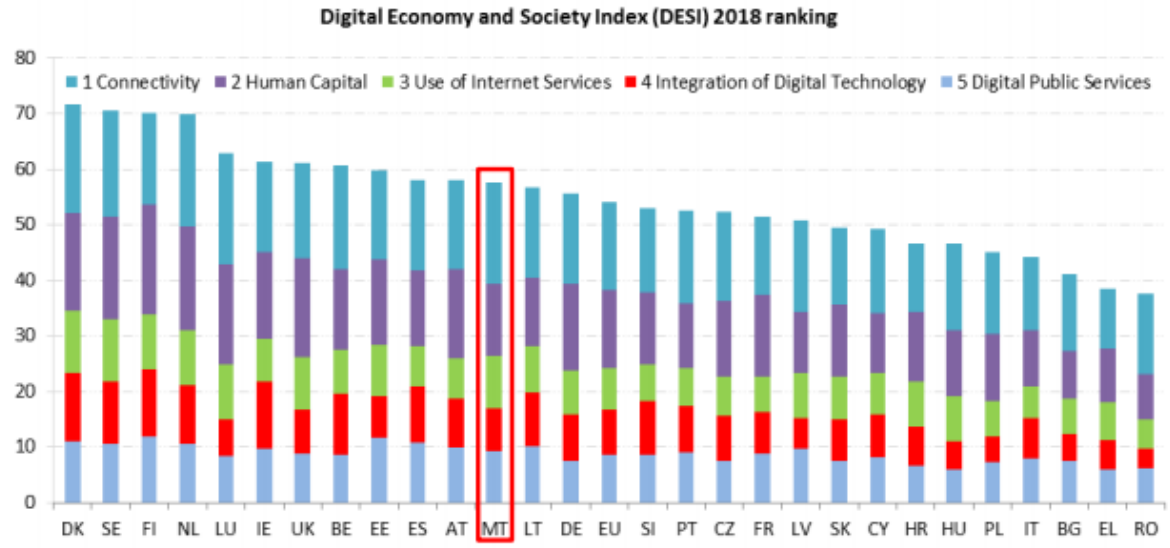
In Malta, the National Interoperability Framework (NIF) in the field of ICT aims, among others, the following objective: disseminated and reusable information and communication technologies (ICT) owned by the public sector are discovered and can be used by public services with least effort.

From the perspective of interoperability levels, three out of the nine criteria set out in the NIF are implemented: change management, intersectoral communities supporting semantic interoperability, and a list of adopted formal specifications used to establish public electronic services are implemented.

Malta is ranked 12th out of the 28 EU Member States, with progress registered at an average pace in recent years. Malta records values above the EU average in terms of broadband connectivity and the use of Internet services by citizens. Moreover, it remains a European leader in broadband (basic, fast and ultrafast) bandwidth availability, being the only Member State with full coverage of ultra-fast networks. Malta also has a very good performance in the provision of digital public services.

[13] https://idpc.org.mt/en/Pages/Home.aspx.
[14] http://www.judiciarymalta.gov.mt/home?l=1.
[15] https://localgovernment.gov.mt/mt/DLG/Pages/DLG.aspx.

The main challenges are related to digital skills, especially the low number of STEM graduates (science, technology and mathematics) and open data. Improving digital skills is also vital to enhancing the integration of digital technologies in enterprises.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

With regards to internet access in terms of speed and national coverage, Malta internet users engage in a wide range of online services. The latter has a value well above the EU average in terms of Internet access: the performance of this country exceeds the average for most indicators. 90% of Internet users download music, videos and games (78% in the EU), 87% use social media (the highest value in Europe, the EU average being 65%) and 83% read online news (compared to 72% in the EU). Malta exceeds EU performance in video on-demand subscriptions (26%) and in video calls (56%). However, Malta has a medium performance in transactional services such as eBanking and online shopping. 64% of internet users are shopping online and 61% use online banking. Malta has recently revised its e-commerce strategy to help companies sell online.

From the perspective of the connectivity indicator, Malta was in 2018 on the 6th position among Member States on, confirming its previous year's ranking. Malta recorded an indicator above the EU average for broadband connectivity: it ranks first in terms of fixed broadband, fast broadband (NGA) and ultra-fast broadband coverage of 100% covered population. A significant increase was recorded in mobile broadband (from 68 subscriptions per 100 persons in 2016 to 93 in 2017) and ultra-wide broadband take-up (from 3.4% of households recorded at> 100 Mbps in 2017 to 11.4% in 2017).

Overall, Malta ranks 11th in the field of digital public services, with a value that exceeds the EU average, although the indicators in the dimension of the electronic index shows a mixed picture. Malta is the European leader in providing government services to citizens. It primarily deals with the re-use

of information between administrations to ease the lives of citizens and the sophistication of services (finishing the online service), where it has a maximum score.

Malta also has good results in online public services for businesses. However, the use of e-government and e-health by citizens, as well as open data, are below the EU average.

From a data security perspective, considering the "Percentage of persons who have been abused by the nature of disclosing personal information or other violations affecting their privacy," Malta has the highest value at European level in the most recent available data (registering 6,37% versus the European average of 2.79%).

Malta also recorded a value slightly above the European average in the case of the percentage of people who suffered financial losses as a result of the fraudulent use of bank cards resulting from phishing or as a result of redirecting to false web pages requesting personal information ("pharming"). Thus, in Malta in 2015, 2,98% of the respondents reported such experiences versus 2,56% of the European average.

Portugal

Institutional framework

Electronic governance in Portugal is under the responsibility of the Administrative Modernization Agency (AMA), which was set up in 2007, and follows the responsibilities of the Presidency of the Council of Ministers in the fields of modernization, administrative simplification and eGovernment, under the supervision and guardianship of the State Secretary for Administrative Modernization. AMA's activity is divided into three main pillars: Digital Transformation, Provision of Public Services (Both Physical and Digital) and Simplification and Public Participation. The Agency is also responsible for the national funding program for modernization, focusing on the efficiency and effectiveness of public administration. AMA manages areas such as ICT strategy and governance, electronic identification (eID), interoperability, open data and other building elements of the digital government in Portugal.

From the perspective of institutional actors with a role in implementing and supporting e-services in Portugal, an important role is played by the following institutions:

- AMA implements initiatives for the modernization and simplification of the public administration, focusing on digital transformation and service delivery.
- Ministries and individual government agencies undertake projects in the field of eGovernment based on their own competencies.
- The Management Centre of the Electronic Governance Network (MCEGN) is subordinated to the Office of the Prime Minister and provides support to governmental IT organizations. It is responsible for managing the entire technological infrastructure of the governmental network, including the maintenance of the Data Processing Centre, technology equipment, systems and the electronic communications network. In addition, CEGER focuses on electronic security and advanced systems that support government decision-making.

- The public service broadcaster (eSPap) aims to ensure the development and provision of public services as well as to develop, manage and evaluate the national procurement system and to ensure the management of SVP (State Vehicle Parking) supporting the definition of strategic policies of the Ministry of Finance in the field of information and communication technologies (ICT). It also ensures the planning, design, execution and evaluation of digitization initiatives for those services and organizations.

Strategic framework

From the perspective of the strategic e-government framework, the main programmatic documents available in Portugal are presented below.

The Simplex+ program is a national collaborative simplification program launched by the Portuguese government to co-create new online public services to optimize existing services and reduce bureaucracy between public institutions and the civil society. The general coordination of the SIMPLEX + program is provided by the Minister of the Administrative Modernization Agency, while the AMA Technical Assistance, includes the design, management and monitoring of SIMPLEX+, is under the political guardianship of the Secretary of State for Administrative Modernisation.

Portugal's Participatory Budget (PPB) was initiated as the first participatory budget of the world, made at national level, and is a paradigmatic case of participatory democracy, sustained by technology. The first edition of the PPB was implemented between January and September 2017 and allowed citizens to decide to invest 3 million euros from the national state budget in one of the following areas: culture, agriculture, education and adult training (in the Continent region) and justice and the internal administration (in the autonomous regions of the Azores and Madeira). This initiative has prompted an increased interest among citizens, who presented a total of 1015 ideas for national projects (impacting on several regions of the country) and regional (which have an impact on several municipalities in the region) 50 face-to-face participatory meetings covering all districts in the country.

The Experimental Laboratory of the Public Administration (LabX) aims to design and test, together with all the stakeholders involved, new services and administrative procedures more suited to the needs of citizens, businesses and public services. LabX will allow the development of an experimentation culture to anticipate, accelerate and generate innovations so that public administration can do more - and better.

Created in 2016 through the Resolution of the Council of Ministers no. 33/2016 of 3 June, *the Council for Information Technologies and Communications in the Public Administration (CITC)* is the coordinating structure responsible for the development and operationalization of the strategy and the general action plan for ICT in the public administration in Portugal.

Portugal INCoDe.2030, launched in April 2017, is an inter-ministerial action that brings together the fields of modernization of science, technology, higher education, education, labour, planning and infrastructure and the economy, and aims to strengthen the basic skills of the Portuguese population in the field of ICT, for emerging and digital employment opportunities. This initiative is structured around five main axes, namely Inclusion, Education, Qualification, Specialization and Research, which aggregate a variety of measures that need to be implemented by different government bodies in collaboration with the private sector, academia and civil society.

The Citizens Shop is a public service delivery concept that combines several public and private entities in the same physical space to ease the relationship of citizens and companies with the public administration. The establishment of the first "shops for citizens" took place in 1999 in Lisbon and Porto. The opening of these facilities was the first step towards the concept of a one-stop shop for the provision of public services, as citizens now have access to a wide range of public and private services in the same place. This model has been continuously developed to meet the evolving needs of citizens and businesses, including the availability of free Wi-Fi and the ability to automatically assess the services provided by QR or SMS free of charge.

The Citizens Spot is a physical counter that provides more services where a specialized mediator helps citizens access a digital public service portfolio and teaches them how to independently perform next steps.

The program "Simplificar" defines an ambitious agenda for Portugal in areas of administrative modernization. Its aim is to create new service delivery models, simplify the principles and strengthen interoperability measures.

The Digital Agenda of Portugal has the role of subsidizing the development of the digital economy and the knowledge based society, preparing the country for a new model of economic activity centred on innovation, knowledge and a new industrial policy as a basis for providing new products and value higher - services brought and oriented to international markets.

The eGOV Innovation Center is a partnership between the Administrative Modernization Agency (AMA), the University of Minho and the UNU-EGOV Policy Unit on Policy Governance through Politics. The eGOV Innovation Center aims to articulate synergies and develop the enormous potential for research, training and internationalization in eGovernment. Located at Minho University (Guimarães, northern Portugal), the Hub promotes both the region and the country as an internationally recognized eGovernment centre of excellence in the triple perspective of public policies, technology and capacity building.

Main eGovernment platforms

The main e-government platforms operable in Portugal are presented below.

The ePortugal platform[16] is the central channel for electronic access to public services, being launched in early 2019 and replacing the old Citizen Portal platform. The new portal is a dynamic solution, offering users the possibility to access information regarding their relationship with public authorities. Citizens can obtain information about and access more than 1,000 public services - grouped according to 12 main categories (Lifetime; Home; Education; Business; Family; Leisure; Birth; Death; Retirement; Health; Work and Automotive), including the possibility to use innovative support mechanisms such as the SIGMA chatbot virtual assistant solution or the option to obtain digital order vouchers to access public services at the counter (via Citizen Map).

The Entrepreneur's Office/BdE[17]*,* which is included in the ePortugal portal, is the unique contact point for accessing digital services related to the pursuit of economic activity. The services provided include

[16] https://eportugal.gov.pt/en/inicio.
[17] https://eportugal.gov.pt/en/inicio/espaco-empresa.

the complete setting up of a business through the Internet ("Business Online") as well as the "electronic business file" where the different interactions of each business with government are collected and accessible to business partners or their representatives by authenticating their identity through advanced electronic certificates. This ensures full transparency on the status of those processes.

The Electronic Authentication Platform (Autenticação.gov)[18] brings together the different authentication and electronic signature solutions available to citizens, enabling them to have secure and authenticated access to the portals and websites of various public entities (such as the ePortugal Portal or the Tax Authority Portal). Useful authentication tools are the citizen's Card, the Portuguese ID card based on eID and the mobile digital key, a mobile ID solution that allows citizens to authenticate themselves exclusively with a mobile device, thus suppressing the need to use a personal computer with a smart card reader.

The Open Data Portal - "Dados.gov"[19] - following international practices in the field (for example, the United States or UK Data.Gov projects), the Administrative Modernization Agency (AMA) is committed to developing a broad and open platform containing all kinds of data from public bodies. The Dados.gov portal provides a wide range of information from a wide range of people. The objective of this policy - considering the right of every citizen to consult information from public administration - is to democratize this access by facilitating the means to obtain it.

Platform of the Tax and Customs Authority - Financas.gov[20]*:* The Ministry of Finance provides the citizens and companies with the portal Financas.gov, which allows for the filing of taxes and the consultation of the tax situation. Advanced features have recently been integrated into the system, allowing for better use, most notably the income tax statement.

Social Security Platform - Direct Social Security[21]: Citizens can access social security data and can access a wide range of services from lodging unemployment benefit claims, child allowances, holidays, payments and access to all necessary information on rights and their duties in the field of social security. Authentication via citizen card (eID) is available and the platform features a wealth of prior information based on back office automation and interconnection with other public organizations.

The Municipal Transparency Portal[22] provides citizens with the social, financial and budgetary data of each municipality, such as the amount of taxes collected and the debt per capita. It allows citizens to consult the status of municipalities and to evaluate local public policies.

Utility tools for the public sector - usabilidade.gov.pt[23]*:* Portugal has developed a "set of tools for use" for the public administration, available through the website Usabilidade.gov.pt. This website shares a set of good practices and tools for public bodies to improve and standardize their digital presence in this area (to facilitate citizen interaction with public administration).

[18] https://www.autenticacao.gov.pt/.
[19] https://dados.gov.pt/pt/.
[20] http://www.portaldasfinancas.gov.pt/at/html/index.html.
[21] https://app.seg-social.pt/sso/login?service=https%3A%2F%2Fapp.seg-social.pt%2Fptss%2Fcaslogin.
[22] https://www.portalmunicipal.gov.pt/home?locale=pt.
[23] https://usabilidade.gov.pt/.

National context

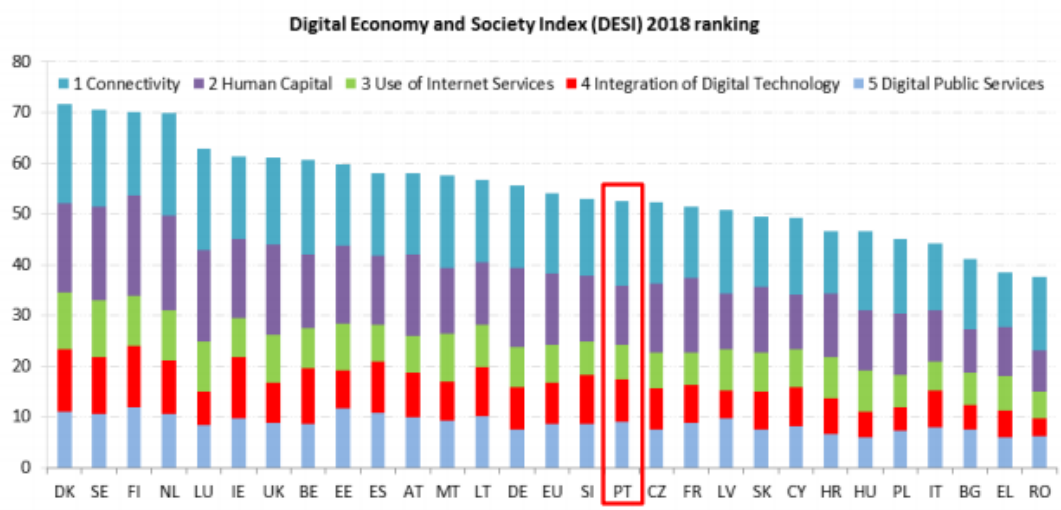
The national interoperability framework in Portugal covers all levels of interoperability (legal, organizational, semantic and technical), the main focus of this document being technical interoperability through the availability of an integration level (interoperability platform) between all public IT systems.

Interoperability arrangements are duly correlated with the evolution at European level. The inter-ministerial network for ICT defines guidelines and standards with the consensus of all sectors of public administration. These guidelines and standards go through a legal process, after which they will have binding force to be adopted by all public administration.

As far as interoperability governance is concerned, Portugal has the inter-ministerial network for ICT. This is a collaborative network of public administration agents (public entities with sectoral responsibilities in this area) with the aim to promote the development and definition of cross-cutting ICT guidelines and standards that can be applied to all public administrations.

Analysing the key indicators defined for the European Digital Agenda (DESI), Portugal ranks 16th out of the 28 EU Member States. The country's overall score has risen slightly, albeit less than the EU average. The values obtained by Portugal have increased in all DESI dimensions, except for the integration of digital technologies. Major improvements include the adoption of fixed and mobile broadband services as well as the use of the Internet by citizens, although there is room for further improvements in all these areas.

Although Portugal has progressed faster than the EU average in all components of the human capital dimension, low levels of digital competence, especially among the elderly and the low-educated or low-income, continue to lead to risks of digital exclusion and prevents progress in most of the other dimensions of DESI.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

As regards to internet access in terms of national speed and coverage, despite progressing to almost all indicators in this dimension, Portugal is ranked 21 in the DESI 2018 ranking. It continues to be among the top 10 Member States, from the perspective of the share of Internet users who access social networks and who create or download games, pictures, movies or music. However, Portugal is the last in terms of online shopping and online banking: only 45% and 42% of Internet users, compared to the EU average of 68% and 61% respectively. Although this situation can be partly explained by idiosyncratic factors, Portugal ranks 24th out of the 28 Member States in both these activities.

From the perspective of the connectivity indicator, Portugal has improved its overall connectivity values in DESI 2018, reaching the eighth place in the European Union. In Portugal, broadband is available across households, and ultra-fast bandwidths are already available for 95% of households, well above the EU average of 58%. 4G coverage improved from 93% to 94%, 3 percentage points above the EU average (91%). Fixed broadband subscription increased by 4 percentage points (from 68% in 2016 to 72% in 2017), shrinking from the EU average (75%). Although there has been a substantial improvement, mobile broadband subscription (55 subscriptions per 100 persons in 2016 compared to 65 subscriptions per 100 people in 2017) is still below the EU average (90).

From the perspective of data security, taking into account the "Percentage of people who suffered abuse by disclosure of personal information or other violations affecting their privacy", the latest data available, Portugal recorded in 2015 a value close to the European average (recording 2,83% versus the European average of 2.79%).

However, Portugal has registered a value below the European average for the percentage of people who have suffered financial losses as a result of the fraudulent use of bank cards resulting from phishing or as a result of redirecting to false web pages requesting personal information ("pharming"). Thus, in 2015, in Portugal, 1,90% of respondents mentioned such experiences versus 2.56% of the European average.

The Netherlands

Institutional framework

The political responsibility for digital governance in the Netherlands rests with the Ministry of the Interior and Relations with the Kingdom. Also, the other line ministries in the Netherlands have ICT responsibilities based on specific competence areas.

In the Netherlands, the implementation of e-governance is a shared responsibility of all governmental organizations. The policy for the development and management of information infrastructure blocks is generally implemented by the ICT Governance Unit (ICTU) and Logius.

The ICTU goal is to support governments in developing, introducing and implementing innovative ICT applications (mainly governmental solutions). Logius is an agency of the Ministry of the Interior and Relations with the Kingdom, which manages ICT solutions at national level. Logius provides services related to access, data exchange, standardization and IT security services. Examples include the DigID authentication service, the Dutch government's PKI, and the Digi network.

In the Netherlands, the levels of local and regional government are based on three types. At the local level, there are municipalities that are considered to be the closest citizens and provide the most

services. At regional level, there are provinces and governmental water administrations, institutions that have fewer direct interactions with citizens.

Local governments have their own digitization responsibilities. Most municipalities have implemented eGovernment policies. Through intergovernmental agreements on the national agenda for implementing digital governance, municipalities have played an active role in national policies.

The Association of Dutch Municipalities (VNG) has developed the Digital Agenda 2020 for municipalities. Increasing transparency, efficiency and functioning as a single government are the main ambitions of this programme, where attention is given to standardizing (where possible) and adapting local services. At regional level, the coordination of eGovernment services is organized by the Provincial Association of the Netherlands and Waterschapshuis.

Finally, there is also VNG Realisatie, which is responsible for developing and managing municipal e-governance standards. It acts as a partner of the municipalities in the management of information.

Strategic framework

At the level of the Coalition Agreement Rutte III "Confidence in the Future" of October 2017, it was announced that the Dutch government will develop an ambitious and comprehensive agenda for further digitization of public administration at different levels. As part of this agenda, the central government aims to be more proactive in deciding which products and services to develop and turn to the private development sector.

The new agenda announced for 2018 will be the successor of the strategic Digital Government 2017 strategic document (Government 2017 Vision Paper), presented to the House of Representatives in May 2013. The "Digital Government 2017" document used a default digital approach, implementing one of the core principles of governance electronics, on the basis of which citizens interact with the government in a digital way. Substantial progress has been made in digital service delivery at different government levels and the connection and use of generic digital infrastructure. The program has been a real success, ending with the availability of 90% of the high value services and the legislative proposals that have been advanced in the field of eID and the right to digital interaction.

In close connection with the 2017 Digital Objectives, the Vision and Action Plan regarding an Open Government describe different developments around open governance and underlines the importance of greater openness from an economic, democratic and societal perspective. Three main themes are addressed in the vision paper: more transparency around government activities, the government's response to society's initiatives, and government accountability. The most important principle concerns the active accessibility of information.

In December 2015, the New Action Plan for an Open Government 2016-2017 was published, focusing on providing citizens and businesses with as much government information as possible, as well as promoting open attitude and behaviour in public administrations. This is based on the belief that open data is not enough; to make the most out of open governance, there must be a correct attitude and behaviour. The Action Plan includes key measures and activities that should be adopted by all public administration institutions. Successful implementation of the action plan should make the government more transparent and accessible to citizens and allow private businesses to develop

seamlessly new applications. In January 2018, an open consultation was launched for the Action Plan 2018-2020.

In the summer of 2015, the Dutch Minister of the Interior transmitted to the Dutch Parliament the National Agenda for Open Data of the Government. The goal of the agenda for 2016 was to increase the accessibility of high-value data for re-use by citizens, businesses and other institutions. Successful implementation of the agenda provides the tools to track progress and quality and will assist data administrators in accessing their datasets.

The new Digital Agenda for the Netherlands covers six key areas: education, knowledge and innovation, fast and open infrastructure, security and trust, space for entrepreneurs, digitization of domains. Under the fourth line of action of the Digital Agenda, new plans and actions are being set up to implement the digital government, such as future business portal (ondernemersplein) and "Government for Entrepreneurs".

In December 2016, the *Electronic Strategy "iStrategy"* was developed, which is based on the principles set out in the government's general program on the efficiency of central government. The e-strategy will have five key priorities:

- strengthening electronic functioning and positioning eGovernment in the centre of policy;
- digitization of primary processes and implementation of generic digital infrastructure (GDI);
- critical thinking - the central government as a "connected enterprise";
- particular attention to security, continuity and security of information;
- proper use of internal and external suppliers.

The strategy provides a long-term perspective on the information infrastructure needed by the central government and related implementation programs. The program has set a framework for ministries to develop their action plans to implement future measures to help achieve the objectives.

Main e-governance platform

Under the iNUP programme, components of the information infrastructure were developed and implemented. As the next stage, the Generic Digital Infrastructure (GDI) was agreed upon as basic foundation for the different government organisations to be integrated in their services. The GDI comprises standards, products and facilities enabling secure communication with the government. Most of the components are managed by Logius. The service delivery cluster of the GDI comprises of the portals allowing citizens and businesses to find public sector information easily and in a coherent manner. The most important e-government platforms in the Netherlands are presented below.

The governmental portal "*Overheid.nl*"[24] was introduced in the first eGovernment action plan of 1999. It contributes to transparency of the public administration and serves as the central access point to all information relating to government organisations. The portal provides information about services for persons and businesses by themes, life events and location. The platform also provides consolidated national legislation, official publications, local and regional legislation and about internet consultations. The portal links to EU legislation, the open data portal data.overheid.nl and to the common website of the ministries rijksoverheid.nl, with documents and publications, news items on

[24] https://www.overheid.nl/.

all domains. In 2017, there were a total of 32.5 million visits to the portal, a 16% increase in comparison being registered to the previous year.

The business portal "Ondernemersplein"[25] is the point of contact for businesses and entrepreneurs in areas such as legislation, subsidies and permits. The information provided covers all levels of government. It is made available through various channels (websites, email, telephone and chat) and focuses on the issues and needs of the business community. In 2017, the website business.gov.nl was launched and improved to assist English speaking entrepreneurs in the Netherlands and abroad. Around 20,000 users use this English version of the 'ondernemersplein' portal.

The *"mijnoverheid.nl"*[26] *platform for personal services* is the portal on which citizens can access personalised information and digital messages from the government, after having logged in with DigiD. The platform offers the following functionalities:

- Citizens can access registries and view their personal data registered by government, such as address and family data, work and income data, pension data, data on their real estate, and their vehicle.
- Citizens can receive messages from different government organisations in their secure message box. The Tax department is one of the key customers of this service. In 2017, a total of 75.4 million messages were sent to the message box; 16% more than in the previous year.
- Citizens can follow the workflow, after having applied for services with participating municipalities. A total of 21 organisations were connected to the workflow functionality at the end of 2017.

"MijnOverheid voor Ondernemers" (My Government for Entrepreneurs)[27] offers a digital environment for entrepreneurs to facilitate a working environment between businesses and the government. The platform offers entrepreneurs the functionalities to check how they are registered with various authorities, to get customised information, and to communicate digitally with the government. The platform will be developed with an approach based on the needs of entrepreneurs and tested in an online pilot environment. In the future, services should also be added, both from local and regional authorities and private parties.

Standard Business Reporting (SBR)[28] is a widely supported solution for the Dutch society, that provides governments and businesses with an unequivocal, cost-effective, secure and adaptable method for the exchange of business information between organisations.

National context

At the end of 2016, the Dutch government held a public consultation to develop the legislation on generic digital infrastructure. This legislation intends to implement the actions and objectives of the digital government. The aim is to make the use of recognized registration means mandatory for the use of digital public services and to set mandatory access standards.

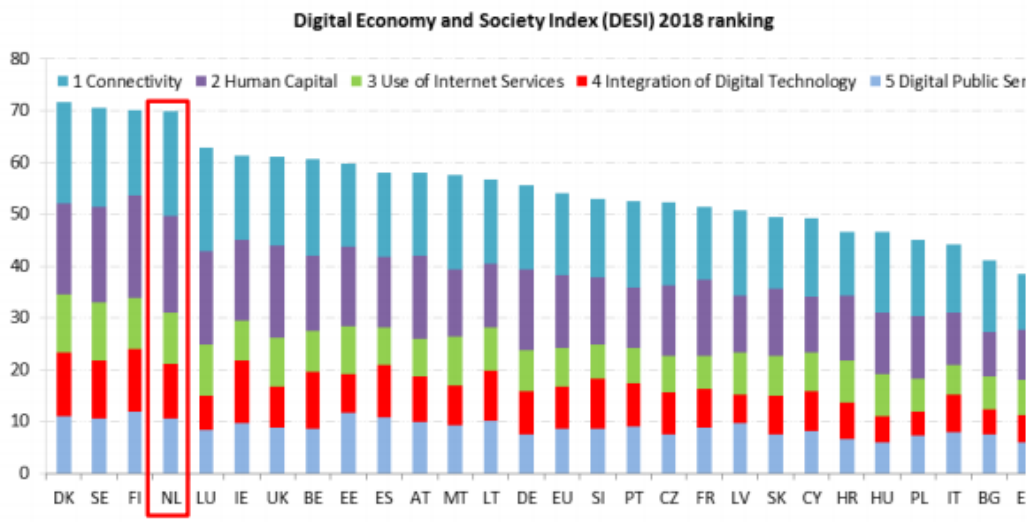
[25] https://ondernemersplein.kvk.nl/.
[26] https://mijn.overheid.nl/?r=1.
[27] https://www.digitaleoverheid.nl/dossiers/movo-mijn-overheid-voor-ondernemers/.
[28] https://www.sbr-nl.nl/sbr-international.

iNUP, the National Implementation Program for E-Governance Services, has been successfully finalized, and the central government, executive organizations, municipalities and electronic service providers have created digital infrastructure, that represents an integral part of public (digital) services. The digital infrastructure is then used to exchange data and information with other government institutions and provide digital services that are trustworthy and secure.

NORA (Dutch Government Reference Architecture) focuses on a service-oriented approach and is fully aligned with all European recommendations for the conceptual model as well as elements related to interoperability levels. As far as interoperability agreements are concerned, NORA encourages public administrations to use open standards, and individual service providers bear the responsibility to implement this approach in the services they offer. The Netherlands successfully implements interoperability governance, principles, conceptual model, and interoperability arrangements.

The Netherlands is ranked 6th at European level in the integration of digital technologies by companies and has made significant progress over the past year. The Dutch companies have intensified their digitization efforts. For example, they increasingly use Radio Frequency Identification (RFID) technology, exchange information electronically, use electronic invoices and exploit the social power of the media. Although the SMEs that sale online have improved their turnover, the percentage of those who benefit from e-commerce opportunities is still below the EU average and has slightly decreased over the past year. The Netherlands ranks first in the ranking of EU countries from the perspective of enterprises that analyse important data from any source (19%).

The Netherlands progressed faster than the EU average, surpassing the other Member States in all five dimensions of the DESI indicators, while improving the ranking for two of the DESI indicators compared to the previous year. The Netherlands continues to be the European leader in connectivity with a high-quality, omnipresent digital infrastructure. These advanced digital networks stimulate the growth of the Dutch economy and the digital society, support a highly advanced environment in the business, education and scientific environment, and thus attract international investment. Almost the entire Dutch population (94%) use Internet services to a large extent, especially for the banking sector (93%) and for shopping (82%). In the digital public services (6th place), the Netherlands has improved its indicator value for all relevant parameters and remains well above the EU average.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

In what concerns the internet access in terms of national speed and coverage, as well as people using internet services, the Netherlands has made progress in the last year and is now ranked 3rd in terms of this indicator. There has been progress in almost all areas: more internet users in the Netherlands read online news (80%); Internet users in the Netherlands are using more and more the video calls (increase from 39% to 46%) and social networks (from 66% to 70%), which has improved the ranking in both areas. The Internet users in the Netherlands continue to overcome the performance of other EU countries in the use of online banking services (93% compared to 61% in the EU-28), ranking second at European level.

From the perspective of the connectivity indicator, the Netherlands has one of the best performances, the fixed broadband coverage and absorption being high (> 99.5% and 98% respectively) and 4G mobile broadband is available to the entire population. Ultra-fast broadband coverage is almost complete (97%). Broadband services are available across the country (via fixed, mobile and satellite networks) but, on the other hand, mobile broadband is relatively low (88 subscriptions per 100 people).

From a data security perspective, considering the "Percentage of people who have suffered abuses such as disclosing personal information or other violations affecting their privacy", the most recent available data show that the Netherlands registered in 2015 a value above the European average (registering 2.98% versus the European average of 2.79%).

At the same time, the Netherlands recorded a very close value to the European average for the percentage of people who suffered financial losses as a result of the fraudulent use of bank cards, resulting from the receipt of fraudulent (phishing) messages or as a result of redirecting to false web pages that request personal information ("pharming"). Thus, at the level of 2015 in the Netherlands, 2.61% of respondents reported such experiences versus the European average of 2.56%.

Belgium

Institutional framework

In Belgium, the Federal Government Department for Information and Communication Technology (Fedict) plays an active part in the definition and development of a common eGovernment strategy. More specifically, it develops cross-border standards, frameworks, projects and services which are necessary in order to deliver the eGovernment strategy. Fedict also develops certain elements of the national infrastructure itself, such as the federal portal 'Belgium.be', the network FedMAN (Federal Metropolitan Area Network).

On the other hand, the Agency for Administrative Simplification is responsible for drafting strategic measures for the simplification of all administrative actions imposed by the State in everyday business exchanges. The Crossroads Bank for Social Security (CBSS) elaborates the eGovernment strategy within the Belgian social sector and coordinates the implementation of the eGovernment projects in this sector.

In what concerns the coordination of electronic services in Belgium, the Digital Transformation Office (BOSA) has an important role, as it helps Government Departments and Agencies to elaborate and initiate their eGovernment projects, and furthermore coordinates their implementation. BOSA is also in charge of the implementation of parts of the eGovernment strategy pertaining to several elements of the common infrastructure (e.g. federal portal Belgium.be, FedMAN network, etc.).

Moreover, in Belgium there are also Federal Departments, Ministries and Agencies that are responsible for the implementation of individual or joint eGovernment projects falling within their respective areas of competence. The Federal Planning Bureau is a Public Agency in charge of performing research and studies on issues of economic, socio-economic and environmental policies. Its scientific expertise in areas as ICT policy and eGovernment is available to the Government, Parliament, social partners, and national and international institutions.

The political responsibility for eGovernment in Belgium's Regions is held directly by the 'Minister-Presidents' (Prime Ministers) of the three Regions: Flemish Region, Walloon Region and Brussels-Capital Region. Within their own areas of competence, the Wallonia-Brussels French Community (WBF) is in charge of education and culture policies for the French Community in Belgium. Regional eGovernment efforts are coordinated by dedicated units or bodies set up by the regional executives: the Flanders Information Agency in Flanders, the eAdministration and Simplification Unit (eWBS) in Wallonia and WBF and the Brussels Regional Informatics Centre (BRIC).

The strategic framework

Regarding the strategic e-government framework, Belgium created the *Digital Belgium* program, which has three ambitions to be achieved by 2020: Belgium to be among the European top three in digital terms, to generate 1000 new start-ups, and to create 50 000 jobs in the whole economy. Digital Belgium is an action plan that outlines the digital long-term vision for the country and translates this into clear ambitions. Belgium aims to reaffirm its place on the digital map as based upon following five priorities with three to six priority projects each:

- Digital economy;

- Digital infrastructure;
- Digital skills and jobs;
- Digital trust and digital security;
- Digital government.

In July 2015, the *Open Data Strategy* for Belgium in order was adopted to strengthen the digital ecosystem and the evolution towards leaner, more efficient and modern administration. The most important part of the plan is to create the default for all government data, except for information with privacy or security implications.

The Federal eGovernment Strategy for social sector aims to create a single virtual Public Administration while respecting the privacy of users, as well as the specificities and competences of all Government bodies and administrative layers. Its main objective is to improve the delivery of public services for citizens and businesses by rendering it faster, more convenient, less constraining and more open. The current strategy is outlined around the following axes:

- The formulation of specific objectives, like the optimal service delivery to citizens, the limitation of administrative burden and the optimisation of the efficiency and effectiveness of public services;
- The explicit choice of a collaboration among all stakeholders in order to create added value for users of eGovernment services;
- The use of a common vision for the use of information in terms of modelling information, mandatory reporting of supposed errors, electronic exchange of information, unique collection of information;
- The use of a common vision for information security and protection of privacy;
- The maximum use of common elements for networks, eID, middleware interconnected and related basic services;
- The role of the Crossroads Bank for Social Security (CBSS) as a driver for the development of eGovernment in the social sector;
- The establishment of a strong partnership among all social security institutions.

The Digital Transformation Office (DTO) implements the Belgian Digital Agenda, which is based upon the EU Digital Agenda 2020. The Digital Transformation Office's main services are: developing the digital strategy and standards for the federal government; executing and monitoring the digital transformation of the federal government; developing transversal digital services and platforms like digital communication services, life events, operations & Infrastructure Services; overseeing the G-Cloud strategic board and committees while reporting to the federal government.

The G-Cloud program is the result of a joint initiative of several public institutions: federal public services, social security institutions and the care sector. The G-Cloud services is operative since March 2015 and many improvements are still carried out. The G-Cloud is managed by the government. Its expansion and operational functioning rely on a large extent on private sector services. The G-Cloud services operate in 4 different domains. The services offer is gradually being extended and improved, based on the actual needs of the participating institutions. Infrastructure-as-a-Service (IAAS), Platform-as-a-Service (PAAS) and Software-as-a-Service (SAAS) are all included.

The non-federal Belgian administrative entities have developed their own eGovernment strategies within their respective areas of competence. Wallonia (including the French Community) and Flanders Regional Governments have created dedicated structures to implement their respective strategies.

The main e-governance platforms

The main e-government platforms operable in Belgium are presented below.

The federal portal www.belgium.be[29] was first launched in November 2002. Originally, it was both the institutional site of the Federal Government and an eGovernment portal providing a single and multilingual entry point to information and services provided by the Federal Government to citizens, businesses and civil servants. The information, available in Dutch, English, French and German, is displayed in a more user-friendly manner, according to the main life-events of both citizens and businesses. Apart from this new user-centric presentation, a powerful search engine allows performing searches not only within the portal, but also outside of it. A major section of the new portal links to all the available public services online (eServices). Users looking for a specific eService can refine their search by theme, target group and/or level of Government involved. Several of these eServices are secured and thus require authentication (site token or electronic ID card).

The FedWeb portal[30], primarily aimed at the staff of the government and administrations, offers general information about working condition, news, regulations, publications, online services, etc. FedWeb Light, the newsletter of FedWeb, offers regular information providing news regarding Personnel and Organisation.

Single Point of Contact Portal[31]*:* the Belgian Government launched the first version of the Single Point of Contact portal for businesses in 2016, which is being continuously updated and more services are being added to it.

The Social security platform[32] offers citizens an extensive, completely updated website structured around three main themes: private life, professional life and health. Every page provides easy navigation to related subjects, external organisations and institutions. The website is the result of collaboration between all public social security institutions and the Federal Public Service Social Security.

In Belgium, there are also many regional platforms for regional-level electronic services such as: the Flemish regional portal[33], the Walloon regional portal[34], Brussels regional 'be home' portal[35], 'Accueil

[29] https://www.belgium.be/en.
[30] https://fedweb.belgium.be/fr/.
[31] http://www.business.belgium.be/en.
[32] https://www.socialsecurity.be/.
[33] https://www.vlaanderen.be/?nav=burger.
[34] https://www.wallonie.be/fr.
[35] https://be.brussels/brussels?set_language=en.

des enfants' portal[36], Business support portal for the Walloon region[37], the Fédération Walloon – Brussels portal[38], the German-speaking Community of Belgians portal[39], etc.

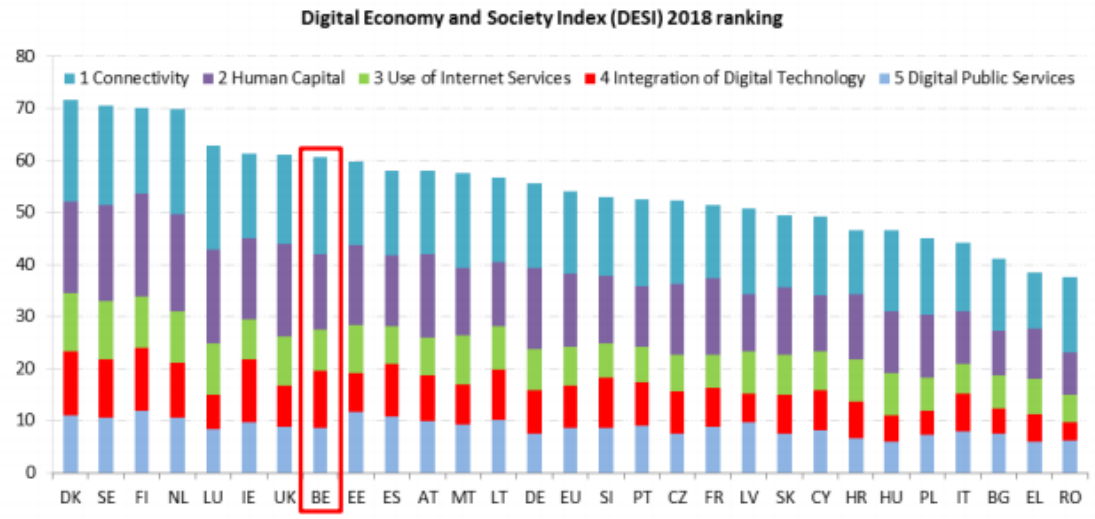
National context

Belgium has launched the BELGIF website as an interoperability framework for the Belgian government. This site was launched by the Intergovernmental Architecture Working Group and provides a mapping of the recommendations from the European Interoperability Framework to various federal / regional / local interoperability (legal, organizational, semantic and technical) initiatives. BELGIF, the collaborative platform of the Belgian government dedicated to interoperability in the context of eGovernment and the information society, is the result of collaboration between several European institutions and the European Interoperability Framework (EIF). This platform is open to public consultation and is open to external contributions.

Belgium occupies the 8th position out of the 28 EU Member States in 2018 in terms of DESI indicators. Over time, Belgium's absolute performance has improved in all DESI areas, with a slight decline compared to 2017, also due to the better performance of the EU member states from the same group. Belgian residents are well connected: the broadband coverage and the (fixed and mobile) subscriptions, as well as the next-generation access network (NGA) are experiencing high growth. Most people in Belgium have online access and use a variety of online services, especially for shopping, entertainment and social networks. Citizens' digital competences are high, but there has been no improvement in this area. Despite the launch of many innovative projects to stimulate the digital competences, the impact of these initiatives on human capital is not yet reflected in statistics. An essential challenge in this area is to motivate more Belgian young people to start a career in digital technology and, in general, to attract more students to study Science, Technology or Mathematics (STEM). From the perspective of integrating the digital technologies by the companies, Belgium has a satisfactory performance and there are some complementary strategies that continue digitization in the Belgian business environment.

The "Digital Belgium" strategy, developed in 2015, further defines the long-term digital vision of the country.

[36] http://www.accueildesenfants.be/index.html.
[37] https://www.1890.be/.
[38] http://www.federation-wallonie-bruxelles.be/.
[39] http://www.ostbelgienlive.be/.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

In what concerns the internet access in terms of national speed and coverage, as well as the persons using Internet services, Belgium has achieved an average performance, ranking 13th out of the 28 EU Member States. According to the above-mentioned aspects, the majority of the people in Belgium have online access (86%) to different services. By far, the most popular online activity in Belgium is the social networking (82%). However, online banking (76%), downloading music, videos and games (72%), shopping (67%) and reading online news (64%) are also activities used by most of the Internet users.

From the connectivity indicator perspective, Belgium has an overall connectivity score of 75.1, continuing to be among the best performing countries in 2018. However, there was a slight decrease compared to the situation in 2017. Belgium has almost a universal coverage, and the indicators related to broadband fixed coverage and NGA remain stable compared to the previous year. Access to fast broadband (30 Mbps and above) increased to 67%, and ultra-fast broadband (100 Mbps and above) reached 41.83%. This situation positions Belgium among EU leaders in adopting these networks. Belgium operates less in mobile broadband. Despite the fact that 4G coverage reached a percentage of 97%, mobile broadband mobility remains among the lowest in Europe, with only 73 subscriptions per 100 people.

From a data security perspective, taking into account the "Percentage of people who have suffered abuses such as the disclosure of personal information or other violations affecting their privacy", from the latest data available, Belgium registered a value below the European average in 2015 (registering 2,62% versus the European average of 2,79%).

However, Belgium registered the highest value in Europe for the percentage of people who suffered financial losses as a result of the fraudulent use of bank cards resulting from the receipt of phishing messages or as a result of redirecting to web pages false requesting the completion of personal information ("pharming"). Thus, in 2015, in Belgium 8,31% of respondents mentioned such experiences versus the European average of 2,56%.

Ireland

Institutional framework

The overall responsibility for the eGovernment policy and the provision of infrastructure and services lies with the Department of Public Expenditure and Reform (DPER)[40], established in 2011 and led by the Minister responsible. DPER is made up of 11 sub-departments, including the Office of the Government Chief Information Officer (OGCIO) [41] with responsibility for a mandate aimed at:

- Implementation of the ICT Strategy in Public Administration;
- Implementing the e-Governance Strategy;
- Implementation of Action 1 of the Public Service Reform Plan, aimed at accelerating the delivery of digital services to support continuous development and innovation across the Public Administration;
- Implementation of Data Strategy in Public Administration 2019-2023;
- Supervising the public spending on ICT and digital development by other departments and agencies to ensure their alignment with the ICT Strategy in Public Administration and other relevant strategies;
- The Irish Government's Technology Development Policy, including policies related to initiatives at European level such as the eGovernment Action Plan, the ISA program, and the regulations on setting up a Single Digital Portal and eIDAS.

In collaboration with other departments and agencies across the public service, the OGCIO drives the Government's transformation agenda, playing a leadership role in digital service delivery and innovation initiatives including through the development and application of a range of ICT and digital-related policies. OGCIO represents Ireland internationally including at EU level, in in issues related to digitization in public administration, e-government and digital transformation.

In order to implement the ICT Strategy in Public Administration, a number of strategic objectives have been established: Building towards Dissemination (aiming at building a common IT infrastructure), Digital in particular, Data as a Facilitator, Improving the Governance, Increased Capacity. Following the implementation of the underlying and correlated measures for the first objective, the public authorities from 70 cities in Ireland currently have access to a secure high-speed network (currently around 600 network nodes), at the governmental level a process to implement a set of common application is undergone (the set of applications including eSubmissions - a system for the management of deposited documents applied at the level of 12 government departments, ePQ – a system of managing the responses at the parliamentary interpellations implemented at the level of 16 government departments, eCorrespondence - an incoming mail management system implemented at the level of 8 departments, eDocs - a record management system implemented at the level of 2 departments, eFOI - a system for processing requests for free access to public information, implemented at the level of 4 departments, HIVE - a joint collaboration platform for public

[40] Department of Public Expenditure and Reform, website available at: https://www.gov.ie/en/organisation-information/6ee40f-office-of-the-government-chief-information-officer-ogcio/.

[41] Office of the Government Cheif Information Officer, website available at: https://www.gov.ie/en/organisation-information/6ee40f-office-of-the-government-chief-information-officer-ogcio/.

administration, accessible to all departments, Intranet - implemented at the level of 8 government departments), this being in the governmental Cloud system in the pilot phase, and the Government Data Center is in the development phase.

At the level of the second objective, OGCIO's work aimed at increasing the degree of assimilation of the MyGovID electronic identification system, especially by adopting it by government agencies as a means of accessing all electronic services by citizens. At the level of the data access target, the Irish Government endorsed, by the end of 2017, the first public data strategy targeting the implementation of a series of measures for the data regime, its safe management and its re-use in a transparent, effective and secure for the benefit of citizens, businesses and public policy makers. In order to improve governance and capacity building, over the course of the current year, a series of competitions will be held in the public administration for the recruitment of ICT staff, as well as an ICT apprenticeship program and a training scheme in association with the fast advancement IT scheme (FastTrack to IT) [42].

Strategic framework

As far as the strategic framework for e-governance is concerned, in Ireland 3 main programmatic documents were adopted in 2017: the e-Governance Strategy 2017-2020, the Public Data Strategy in Public Administration 2019-2023 and the National Framework on Public Administration 2020.

The eGovernment Strategy has as a time horizon the period between 2017-2020 and it is grounded in the Irish Government's commitment to supporting transparent communication and enhanced collaboration with citizens and businesses through digitization and technology to increase efficiency and steadily improve public services. The strategy is also aligned with the European eGovernment Action Plan, based on the detailed principles of this plan: digitally by default, the transmission of information to the public authorities only once, inclusion and accessibility, openness and transparency, cross-border by default, implicit interoperability, trust and security.

The main measures foreseen by this strategy are aimed at: develop a Digital Service Gateway; maintain and overall Digital Programme plan overseen by the eGovernment Minister (by increasing the applicability of electronic services, developing digital projects starting from the existing ones, identifying common key elements to facilitate the development of several types of services such as authentication, payment facilities, etc.); develop existing eID capability; develop similar plans to facilitate business and location identification; enhance data-sharing capability in public authorities (through the development of the National Data Infrastructure); introduce legislation to support data-sharing ambitions between public institutions; develop the Open Data Portal[43]; streamlining administrative procedures and administration infrastructure to deliver better government services and ensuring the availability of human resources with the necessary skills and expertise to ensure the good implementation and maturing of the eGovernment projects.

[42] Department of Public Expenditure and Reform (2019): Department of Public Expenditure and Reform Annual Report 2018, available at: https://assets.gov.ie/8822/311f5bab2ea945b09a5ed6936c2128b0.pdf.
[43] Ireland ranks 3rd in Europe on the maturity of Open Data projects, situation that can be accessed at: https://www.europeandataportal.eu/en/dashboard#tab-country-overview.

The Open Data Strategy in Public Administration for the period 2017-2022 builds on achievements since the launch of the Open Data Initiative[44] in 2014 and it is grounded on two core objectives: the publication of high value government data in open format, making it publicly available and freely reusable, secondly, engaging with a broad community of stakeholders to promote its social and economic benefits of providing governmental data.

The National Public Administration Framework 2020 represents the new framework for supporting the development and innovation in the public administration sector in Ireland. This new phase of the public reform in public administration focuses on supporting sustainable and steady progress in public administration, aiming at strengthening a better prepared public service to provide government services more effectively and closer to citizens. In this respect, at the level of the objective of delivering services to the needs of citizens, the main actions stipulated at the Framework level aim at: accelerating the provision of digital services, improving the quality of services, increasing the accessibility of services and improving and intensifying communication with and involvement of the citizens. Another main objective targeted by the Framework is to increase innovation in public administration, with actions such as promoting a culture of public service innovation, optimizing the use of data, building strategic planning capacity, strengthening collaboration between public institutions, implementing governance principles in program and project management and rooting a culture of impact assessment and substantiation of decisions on data[45].

Main e-governance platforms

Among the main e-government platforms operable in Ireland are gov.ie, the Citizens Information platform and the Local Enterprise portal.

The gov.ie platform[46] was launched in 2011 by the Department for Public Expenditure and Reform, with the role of providing centralized and integrated access for citizens to over 400 public services and other government websites in various areas - education, social security, taxation, housing, transport, health, business, agriculture, justice, the environment and public administration. The platform groups the services by domain, presenting their specifics in brief and guiding the user to the dedicated portals in an easy way[47]. This is, however, a precursor to the Digital Service Gateway provided by the e-Government Strategy 2017-2020[48], which, starting from the same simple general presentation format of public electronic services, allows citizens and representatives of businesses to authenticate through an electronic identification process that allows the "one-only" principle to be implemented[49].

Launched in April 2001, the Citizens Information platform is run by the Citizens Information Board, Ireland's national agency responsible for providing information and advice on social services, operating under the aegis of the Department of Employment Affairs and Social Protection, responsible

[44] https://data.gov.ie/blog/publicationofopendatastrategy2017-2022blogbyemercoleman
[45] Ireland's Government (2017): Our Public Service 2020, (Dublin, Ireland's Government), document available at: https://ops2020.gov.ie/resources/Our-Public-Service-2020-WEB.pdf
[46] https://www.gov.ie/en/.
[47] https://www.gov.ie/en/
[48] https://egovstrategy.gov.ie/actions/
[49] The "once-only" principle is an e-government concept that aims to ensure that citizens, institutions, and companies only have to provide standard information to a public authority once they become accessible on the basis of user consent and other state authorities.

in Ireland for informing and advising citizens on social services. The website provides citizens with useful public information on a wide range of subjects, such as employment rights, buying a home, moving abroad and education. The subjects covered are divided into 14 categories (with over 1300 specific topics), representing life events. This way of organizing the content (offered by different agencies and public institutions) allows users to easily find relevant information and to have easy identification and access to forms related to the administrative procedures they are going through. Only at the level of 2016, for example, the citizensinformation.ie platform registered 19 million visits, generally considering visitors to using the website as a sufficiently informative experience for conducting administrative procedures directly[50]. By mid-2017, the platform was reconfigured, for the frequently accessed sections there were made changes to facilitate the information browsing, and the website itself was updated to accommodate its use on mobile devices as well as its use by people with disabilities[51].

There are currently around 80 government sources to support small businesses and start-ups[52], but the key guide for these entities remains the Local Enterprise platform[53] that represents the First Contact Point for people who want to get complete information about how to start and develop a business in Ireland. The portal provides access to information, advice and support, amongst the facilities available to citizens being included the accessing of tools for the self-assessment of the performance level of the own staff (Workplace Innovation Toolkit), facilitating access to specific content and aggregating information from various public institutions with which small entrepreneurs should interact in the process of starting and developing business, etc.

National context

Regarding the national performance context in eGovernance, Ireland is characterized as reaching a medium-high level of penetration, defined as the extent to which the use of online channels by public service users is widespread, i.e. reaching a level medium-low in terms of digitization, defined as the extent to which the administrative-implied processes and final processes offered to citizens are available/ achievable online[54]. From this point of view, Ireland is placed in the un-exploited e-Governance scenario that includes states that may be in a digitization process, but which have a high number of citizens using public electronic services. In what concerns the indicators analysed at European level in order to form an overall picture of the performance achieved in the digitization field, Ireland is generally in line with the European average both in terms of digital skills of the population

[50] N. O'Connor (2017): *Citizens Information Service. Technical Report: The Public Value of Citizens Information Services in Ireland* (Belfast, Ulster University), p. 40, available at: http://www.citizensinformationboard.ie/downloads/social_policy/CIS_Making_an_Impact_Technical_Report_2017.pdf.

[51] Citizens Information Board (2018): Annual Report 2017, p. 27, available at: http://www.citizensinformationboard.ie/downloads/cib/annual_report_2017_en.pdf.

[52] European Commission (2018): eGovernment in Ireland (2018), available at: https://joinup.ec.europa.eu/sites/default/files/inline-files/eGovernment_in_Ireland_2018_vFINAL.pdf.

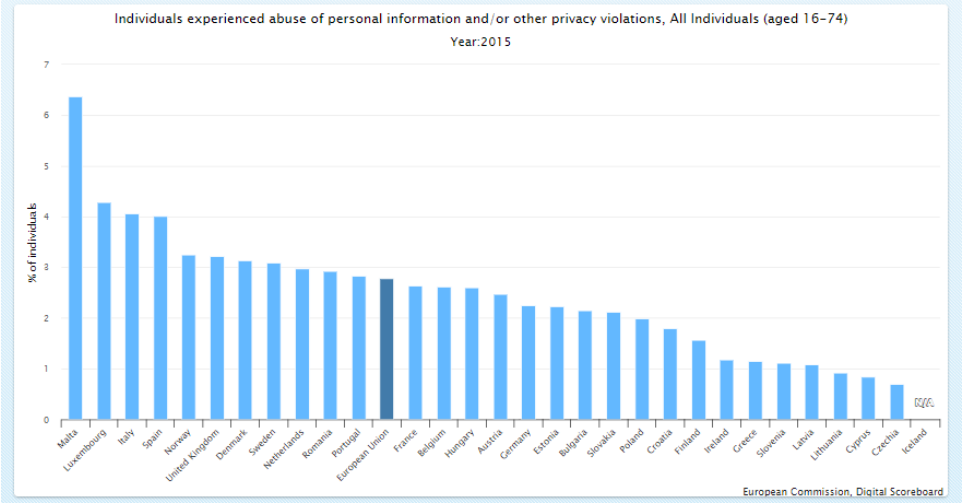
[53] https://www.localenterprise.ie/

[54] European Commission (2019): eGovernment Benchmark 2018. Securing eGovernment for all – Country Factsheets (Bruxelles, European Commission), p. 49, available at: file:///C:/Users/carmen/Downloads/eGovernmentBenchmarkCountryfactsheetspdf%20(4).pdf.

(62%, reported value for 2018 compared to the European average of 55%), ITC use (51% versus the European average of 53%), the quality and degree of openness of the governance (79% and 86% for Ireland vs. 71% and 72% for the European average) and connectivity (65% versus the European average of 64%)[55].

In what concerns the Internet access in terms of speed and national coverage, Ireland has experienced substantial progress in recent years (increasing from 15th place at European level in 2017 to 11th place in 2018)[56]. Thus, the coverage at the national level through fixed broadband networks was 97%, the fixed broadband penetration rate being 74%[57], and the penetration rate of mobile networks was 104%[58], placing Ireland on the 7th place at European level. Only 6% of rural households did not have access to any type of fixed connection, while the coverage of the 4G was 92%, above the European average value. One difficulty remains the coverage of isolated, sparsely populated areas where "digital division" remains significant.

Regarding data security, when considering the "Percentage of persons who have suffered abuses such as disclosing personal information or other violations affecting their privacy", at the level of the latest available data, Ireland was well below the European average (1.17 % vs. European average of 2.79%).

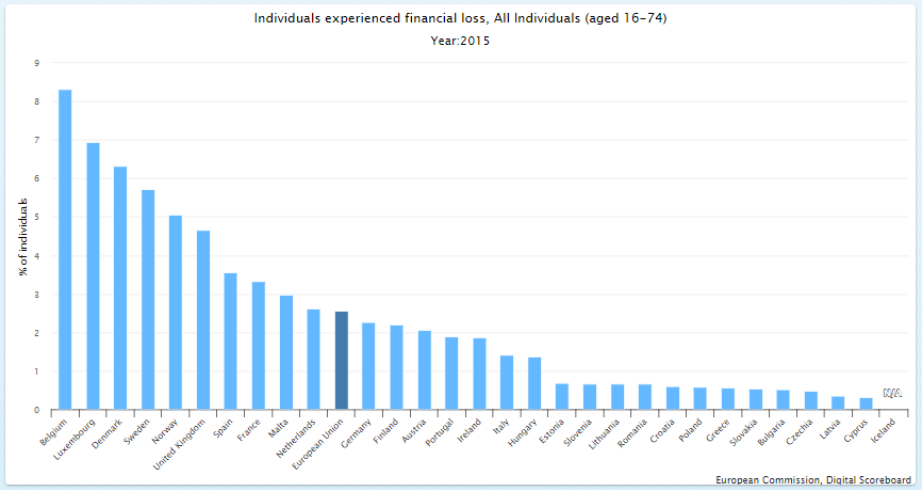


Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

Similarly, Ireland is also below the European average from the perspective of the percentage of people who have suffered financial losses as a result of fraudulent use of bank cards resulting from phishing

[55] Idem.
[56] European Commission (2019): Digital Economy and Society Index 2018 Country Report Ireland (Bruxelles, European Commission), p. 3, available at: file:///C:/Users/carmen/Downloads/IE-DESI2018-country-profile_ENGpdf.pdf.
[57] European Commission (2019): Digital Economy and Society Index 2018 Country Report Ireland (Bruxelles, European Commission), p. 3, available at: file:///C:/Users/carmen/Downloads/IE-DESI2018-country-profile_ENGpdf.pdf.
[58] European Commission (2018): Digital Economy and Society Index 2018 Country Report Ireland (Brussels, European Commission), p.3.

or as a result of redirecting to fake web pages requesting completion of personal information ("pharming"). Thus, in 2015 in Ireland, 1,87% of respondents reported such experiences versus 2.56% of the European average.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

In what concerns the interoperability, the data available for 2016[59] indicated the lack of a national interoperability framework, but the alignment in Ireland with some of the principles and criteria of the conceptual model established in the European Interoperability Framework[60], such as the full alignment in terms of interoperability of governance. Thus, at the level of Ireland, the national data warehouse - data.gov.ie, respectively the electronic service available to citizens, MyGovID (launched in 2016) [61] have been implemented through which citizens have access to several types of services (initially limited to those offered by the Department of Social Protection, with an extended range of services being offered in time), the ultimate goal being that all the state agencies have access to and use the citizen identification information to facilitate the access to all public services.

Spain

Institutional framework

The Ministry of Territorial Policy and Public Function (Ministerio de Politica Territorial y Función Publica - MPTFP) is in charge and has full responsibility for the eGovernment strategy of Spain,

[59] National Interoperability Framework Observatory (2017): NIFO Factsheet – Ireland (NIFO, Bruxelles), available at https://joinup.ec.europa.eu/sites/default/files/inline-files/NIFO%20-%20Factsheet%20Ireland_2016_v1_0(1).pdf.
[60] European Commission (2018): New European Interoperability Framework Infographic, available at: https://ec.europa.eu/isa2/sites/isa/files/docs/publications/eifa4.pdf; EIF leaflet, available at: https://ec.europa.eu/isa2/eif_en.
[61] https://www.mygovid.ie/.

promoting the full incorporation of information technologies and communications for the provision of public services through simplified procedures and processes aiming at the modernisation of the entire sector. Within the Ministry, the General Secretary for Digital Administration Secretariá General de Administración Digital[62]) is responsible for the development of digital administration and is assisted in the performance of these functions by the necessary administrative and material support of the various ministerial departments in order to develop the public electronic services. The General Secretariat for Digital Administration also provides the chair of the Commission for ICT Strategy and the Electronic Administration Commission, representing at the same time the European and international government at the level of eGovernment working groups[63].

Strategic framework

Spain has joined the Open Government Partnership (OGP) in 2011 and is currently implementing the Third National Action Plan as part of the commitments realized to make governance more transparent and accountable in order to improve the response capacity of citizens and thus increase the quality of governance and services provided by the public administration.

The monitoring of Spain's actions in the context of the Partnership is based on the recommendations of the Independent Reporting Mechanism (IRM) and addresses three important issues: (1) promoting mechanisms for participation and dialogue with citizens; (2) ensuring inter-administrative cooperation between different levels of public administration; and (3) establishing the methodological and functional bases of Open Government to ensure the adoption of the necessary measures after the implementation of the Third National Action Plan. In this context, efforts have been made to ensure the participatory dimension of the Plan's elaboration and implementation, so public administrations and civil society have been widely consulted. The Roadmap for the implementation of the Plan consisted of three stages: a preparatory phase (January-May 2017), the approval of the plan (May-June 2017) and the implementation and evaluation of the Plan (to be completed in 2019).

The Third National Action Plan for Open Government contains 20 structured measures around five cross-cutting themes: collaboration, participation, transparency, accountability and training. In what concerns the collaboration, the measures included in the Plan aim to strengthen cooperation with civil society and various public administrations, including the promotion of inter-administrative cooperation. The proposed measures for the participation are intended to activate and empower the citizens to engage and actively influence administrative decisions that concern them directly. As part of the transparency measures, Spain's commitments refer to the strengthening of the instruments available for transparency, to the accessibility of public information to citizens in qualitative and quantitative terms and thus to the transformation of information available to public administration stakeholders into complete, clear and easily accessible information. Measures are also proposed to strengthen transparency in areas of activity where information has a strong added value and facilitates direct and decisive action on the part of citizens. With regards to the measures focusing on training, the dissemination of a culture based on the principles of open government was envisaged. The

[62] https://administracionelectronica.gob.es/pae_Home#.XO0EZIgzbDc.
[63]Secretariat for Digital Administration (2019): Presentation of attributions, available at:https://administracionelectronica.gob.es/pae_Home/pae_Organizacion/SGAD.html?idioma=en#.XO0Da4gzbDc.

undertaken measures cover a wide range of training activities for public sector employees on open values, tools and strategies, citizen awareness activities on public administration and student education about open governance, with the aim to generally develop social and civic skills and knowledge about the principles of open governance.

The Digitization Plan of the Spanish Administration and Public Agencies, also known as the ICT Strategy for the period 2015-2020, was approved by the Council of Ministers on 2nd of October 2015 and benefits from an annual review from an inter-ministerial committee specially set up in this sense. The plan establishes the overall strategic framework necessary to ensure the transformation of the Spanish administration and the principles, objectives and actions deriving from this approach as a reference to the gradual development of the concept of digital governance. These, in turn, will become the basis for the development of sectoral digitization plans adopted by each ministry, the implementation and evaluation of which will be coordinated by the General Secretariat for Digital Administration, the body responsible for the development of shared IT&C tools and services.

The plan was elaborated on the basis of the national legislative framework for uniformization of the administrative procedures used in the public sector and taking into account the suggestions received from the Public Administration Reform Committee (in the context of which information technologies have a decisive role in reforming the administration), as well as the OECD Recommendation on Digital Governance Strategies.

The Spanish Digital Agenda foreseen a series of guidelines for the digitization of public administration by 2015, but the modest results obtained by the Public Administration Reform Committee and the provisions of Art. 9 of the Royal Decree 806/2014 on the organization and use of IT&C tools at the level of the Spanish public administration made it necessary to continue the effort on the basis of a new strategic approach capable of accelerating the "digital transformation" of the public administration. The plan contains five chapters describing the overall picture of the current situation, the guiding principles to be followed in the future, the strategic objectives and the actions deriving from them, but also a governance model for the implementation and evaluation of this plan.

The guiding principles established in the digitization plan are presented as valid for both the national plan and sectoral plans, with the principle of focusing on service users, the principle of the vision and action unit, the principle of cooperation within and between administrative units, the principle of transparency and responsibility, the principle of innovation, etc. Five strategic objectives structure the digital transformations that are desired for the Spanish administration: (1) increasing productivity and efficiency in the internal functioning of public administration as an element of national competitiveness; (2) deepening the digitization process of public administration, transforming the digital channel into the preferred choice of citizens and businesses to interact with public institutions; (3) streamlining the provision of IT&C services in public administrations through database interoperability so as to allocate more resources to innovation and to extend the use of electronic services; (4) implementing intelligent knowledge, data and information management to improve the efficiency of public administration for the benefit of citizens, while ensuring the protection of their identity in the on-line environment; (5) the development of a security strategy for the use of electronic services to enhance people's confidence and promote the widespread use of their access.

The digitization plan details the 9 lines of action that can lead to the achievement of the proposed objectives, which are recommended to be complemented by and compatible with specific actions in the sectoral plans for the digital transformation of the various ministerial departments, such as: (a) digitization of internal processes management of administrative units; (b) the development of digital jobs; (c) the provision of e-services in the public sector that corresponds to new technologies; (d) improving the satisfaction of users of public sector electronic services; (e) promoting innovation in the provision of services; (f) the provision of common shared services; (g) publishing information for citizens and the business environment and facilitating their reuse; (h) substantiating decisions based on electronic data analysis systems; (i) ensuring the security of the IT systems of the Spanish administration and the component public bodies.

The Digitization Plan of the Spanish Administration and Public Agencies for the period 2015-2020 introduced a governance model for coordinating and evaluating the digitization efforts of the administration, defining the organizational structure required for implementation and monitoring as well as several information activities.

In order to achieve objective 5 of the administrative digitization plan, regarding the security of the use of electronic public services, the Spanish Council of Ministers adopted on 1st of December 2017 the National Cyber Security Strategy. This was the first strategy developed in the context of the provisions of the Law 36/2015 on national security and had one of the 12 strategic objectives included in the National Security Strategy adopted in 2013: the one related to the cyber security.

The strategy provides the Spanish government with the basis for efficient cyber-space management to implement cyber-threat prevention, defence, detection and response against cyber threats through six action lines: (1) enhancing capabilities for prevention, detection, response, analysis, recovery, response and research in the field of cyber-attacks, as well as strengthening the technical and strategic coordination of the National Security System in the field of cyber security; (2) the promotion of regulatory, organizational and operational mechanisms, as well as the implementation of concrete measures, good practices and operational plans for the protection, safety and resilience of the public sector in general, but especially of the sectors of national strategic interest (especially in critical infrastructures and essential services), the business sector and citizenship in a way that guarantees a secure and reliable digital environment; (3) improving national cooperation in the public sector and between the public sector and the private sector in the field of cyber security; (4) the realization of the necessary technological capabilities through the Spanish digital security industry, promoting a favourable environment for research, development and innovation, as well as the involvement of the academic environment; (5) the promotion, development and retention of knowledge, skills, experience and technological and professional capabilities necessary to support cyber security objectives; (6) ensuring the security of Spain's cyberspace, compatible with the vision and objectives of the European Union and with respecting the international law.

In August 2018, the National Security Council approved the launch of a new IT security strategy in Spain, so that the entire strategic development framework for electronic services is regularly updated.

Main e-governance platform

The Single Access Point of users (individuals and legal entities) to electronic services provided by the Spanish government is represented by administracion.gob.es[64], that facilitates the intercommunication of citizens and businesses with the public administration, for accessing the government information, and for knowing at any time the state of processing of their cases, in accordance with Law 39/2015 and Royal Decree 1671/2009, which regulates the General Access Point of the state administration.

The Citizen's folder[65] is a facility of the Single Access Point, where the user can access, browse and observe all the personal information that the administration possesses about him or her (either citizens or business). A user can, for example, check the state of their tax returns or find out whether they have any pending traffic fines, can track the progress of solving a complaint or receive notifications from the administration. Access to the Citizen's folder is based on the ID card, user account, and password. In 2017, 461.894 entries were registered in the Citizen's folder from the Single Access Point, which is three times the size of the 2016 records.

The eGovernment portal of Spain, administracionelectronica.gob.es, is the portal that centralises all available information about eGovernment. It serves as a gateway for all information on the status, development, analysis, news and initiatives around eGovernment. The portal was created in response to increasing the visibility of the concept of electronic governance in the last years in the economic and social environment at national, European and global level. The Spanish eGovernment portal includes the National Observatory of eGovernment, a section containing reports and indicators regarding eGovernment and the Technology Transfer Centre.

The open data portal datos.gob.es[66] aims to simplify the data management and allow users to access data published by different bodies in the Spanish administration. The data is centralized in a catalogue on various domains of activity (public sector, economy, demography, education, culture, transport, health, commerce, rural development, housing, etc.) available to all the users and updated monthly, weekly or daily, on a case by case approach.

So far there are 295 accession initiatives to the open data portal, 43 of which come from state administration bodies, 18 from regional administrations, 224 from local administrations and 10 from universities. Areas such as the environment, the public sector and social welfare are of great interest from the authorities, with the most open data series in these areas of activity being among the most loaded on the portal. Also, the availability of the Spanish authorities to post monthly data sets on the portal has led to a peak of 26.370 open data sets published in April 2019.

The Spanish users, citizens or business community are more and more interested in the open data provided by the administration through this portal, so that in May 2019 there were 70,632 unique visitors to the portal compared to 50,190 in May 2018 and 33,122 unique visitors in May 2017. The most requested series of data were the unemployment rate (broken down by years, semesters, municipalities, sex, economic activity domains) published by the Ministry of Labour, Migration and Social Security and the data related to the fuel prices in the Spanish gas stations (fuel prices, tariff

[64] https://administracionelectronica.gob.es/pae_Home#.XSYNkOgzbDc.
[65] https://sede.administracion.gob.es/carpeta/clave.htm.
[66] https://datos.gob.es/.

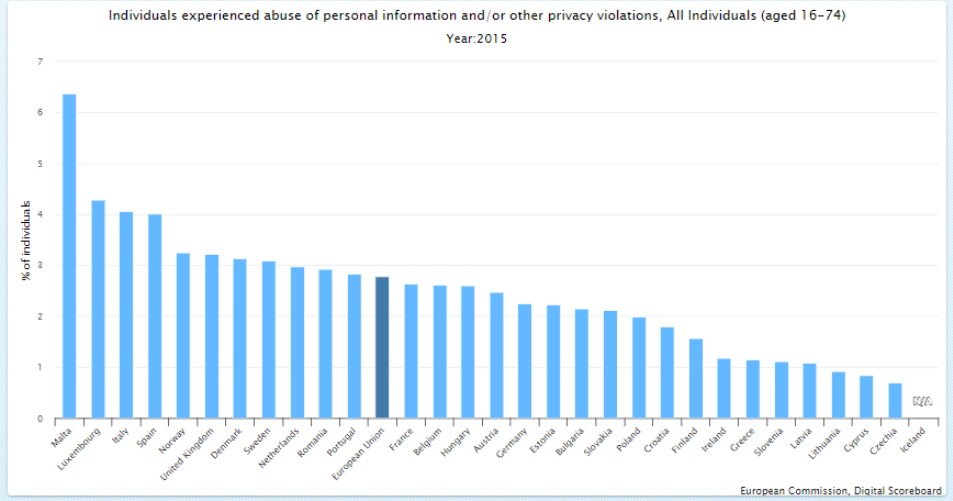
plans, discounts, conditions for discounts, discount customers) published by the Ministry of Energy, Tourism and the Digital Agenda.

National context

In general, Spain's eGovernment performance is above the EU average. Spain is characterized as achieving a medium-high level of penetration of electronic services (the extent to which the use of online channels for accessing public administration services is widespread among the population and the business environment) and above average in terms of digitization (the extent to which the default and final administrative processes offered to citizens are available/achievable in the online environment). Thus, along with countries such as Austria, Denmark, Finland, Lithuania, Latvia, the Netherlands etc., Spain is part of the group of developed countries in relation to the implementation of e-governance, with a relatively high number of citizens using public e-services. The indicators analysed at European level to produce an overall picture of the Member States' performance on the digitization of public administration places Spain above the average of the European Union (83% versus 72% of the European average) and on connectivity (65% versus 64% for the European Union average). Spain ranks below the European average, but not with large differences, on indicators such as the digital competences of the population (55%, similar to the European average), the quality of governance (67% compared to 71% the European Union average) and the degree of using IT&C (50% vs. 53% the European average).

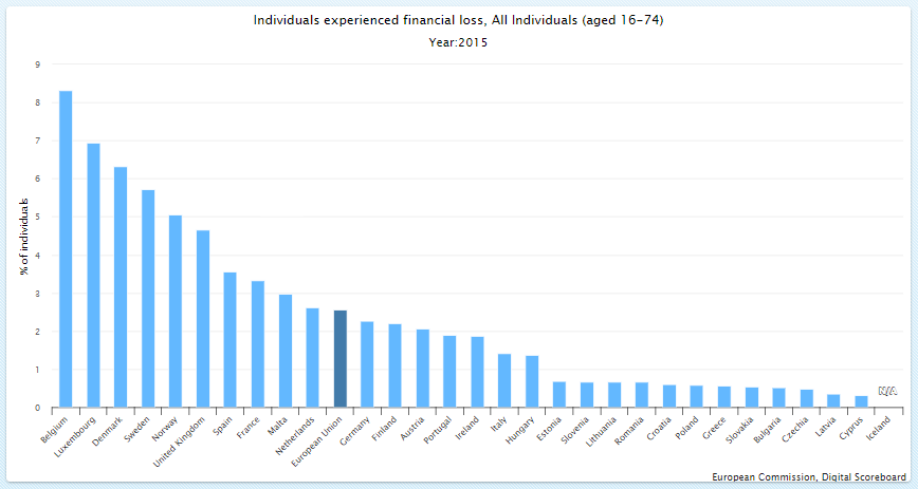
The internet access in terms of national speed and coverage has seen a slight increase trend in recent years, but still slightly below the European Union average: 96% in 2017, compared to 95% in 2016, but below the European average of 97%, thus occupying the 21st place in the community space. The national coverage by broadband fixed networks was 97% and the mobile penetration rate was 92%, placing Spain on the 11th position at European level. The 4G coverage was of 92%, slightly above the European average of 91%, making a significant advance compared to 86% in 2016. Spain is therefore still more expensive than the EU average, as compared to the rates charged. The current context is a convergent market characterized by increased Internet access speeds, where the cost of service packages offered by different operators increases in correlation with the service improvements.

In what concerns data security, considering the "Percentage of persons who have suffered abuses such as disclosure of personal information or other violations affecting their privacy", based on the latest available data, Spain was over the European average (recording 4.01 % versus the European average of 2.79%).



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

Similarly, Spain is also above the European average for the percentage of people who have suffered financial losses as a result of fraudulent use of bank cards resulting from phishing or as a result of redirecting to fake web pages requesting completion of personal information ("pharming"). Thus, in 2015, in Spain 3.56% of the respondents mentioned such experiences compared to the European average of 2.56%.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

In terms of interoperability, the available information indicates that Spain is well aligned to all levels of interoperability (organizational, semantic and technical). At organizational level, a number of issues are addressed to allow the organizational interoperability, including aspects of the conditions in which services are to be electronically consumed by other public bodies, the role of interoperability arrangements for databases managed by the public institutions, interoperability nodes, and administrative services (facilities and units), and staff training in interoperability. The semantic level addresses the publication of horizontal and sectoral data models and the role of the Semantic

Interoperability Administration Centre, where data models are published. The level of technical interoperability addresses the interoperability conditions with respect to the use and selection of standards.

Italy

Institutional framework

The Ministry of Public Administration (Ministero per la Pubblica Amministrazione) is responsible for the development of public administration policies, coordinated by the Department for Public Administration, a structure to support and oversee the reform and modernization of public administration. The Department for Public Administration is structured in 7 offices, including the Office for Innovation and Digitalization, an entity that promotes and coordinates digitization policies and innovative public interventions in public administration, ensures the implementation of the Digital Agenda's priority initiatives, promotes adoption tools and models for implementing the principles of digital citizenship and transparent governance, and providing technical support for drafting legislation on the Digital Agenda[67].

At the same time, starting in 2012, the Agency for Digital Italy (Agenzia per l'Italia Digitale - AgID) has become the governmental institution authorized to guarantee the achievement of the goals set in the Digital Agenda of Italy. In this regard, AgID is designed to ensure the implementation of the 3 year IT Plan for Public Administration[68] (a plan defining the technology development model within the administration, setting out the basic principles for IT architecture, rules on platform use and interoperability, ICT expenditure classification) thus fostering the country's digital transformation. The plan sets out, first of all, a model of digital development according to which: the central administrative level establishes regulations, standards and creates platforms to optimize ICT investments; central and local governments develop services in line with national standards using internal and / or external resources, and the private sector develops solutions and creates long-term investment to ensure the ability to connect their own services to national platforms.

Strategic framework

In addition to the legislative measures adopted to support the Digital Agenda, the Italian Council of Ministers approved on 3 March 2015 the Digital Development Strategy 2014-2020, the Ultra-wide Band Plan and the National Strategy for Broadband Coverage Development. The strategic document package was developed by the Agency for Digital Italy, together with the Ministry of Economic Development, under the Prime Minister's coordination.

The new national broadband plan proposes a combination of public and private investment because, according to the Italian administration, if users invest in IT&C in the same way as the authorities, then the results will be higher than the minimum targets proposed by the European Union. The central objective of the strategy is to reduce the infrastructure and market gap that exists between Italy and other EU countries, creating favourable conditions for the integrated development of the fixed and

[67] The Department for Public Administration (2019): Presentation of digitization tasks, available at: http://www.funzionepubblica.gov.it/digitalizzazione.
[68] https://www.agid.gov.it/it/agenzia/strategia-quadro-normativo/piano-triennale

mobile telecommunications infrastructure through actions such as: (1) providing incentives designed to reduce the barriers of implementation costs, simplification and reduction of administrative burdens; (2) Effective coordination of actors involved in urban planning and spatial planning by setting up a land and subsoil cadastral to enable optimal monitoring and efficient use of the existing infrastructure; (3) adapting to other European countries in the field of electromagnetism limits; (4) promoting the "quantum leap" by providing tax incentives and subsidized loans for those wishing to invest in profitable areas; (5) stimulating investment in marginal areas; (6) making direct public investment in areas of market failure. In order to finance the achievement of these objectives, the ERDF and EAFRD, the Development and Cohesion Fund, are available in a total of 6 billion euros, in addition to the Juncker Plan funds.

The objective of the strategy is to reduce the infrastructure and market gap that exists between Italy and the other EU countries, creating favourable conditions for the integrated development of fixed and mobile telecommunications infrastructure through actions such as: (1) providing incentives to reduce implementation barriers, simplify and reduce administrative burdens; (2) effective coordination of actors involved in urban planning and spatial planning by setting up a soil and subsoil registry to enable optimal monitoring and efficient use of existing infrastructure; (3) adaptation to other European countries in the field of electromagnetism limits; (4) promoting the "quantum leap" by providing tax incentives and subsidized loans for those wishing to invest in profitable areas; (5) stimulating investment in marginal areas; (6) making direct public investment in areas of market failure. To finance the achievement of these objectives, the European Funds ERDF and EAFRD, the Development and Cohesion Fund, are available in a total of 6 billion euros, in addition to Juncker Plan funds.

The National Broadband Plan is linked to the Digital Development Strategy. The strategy has a dynamic character, in order to gradually adopt the scenarios and estimates made for the 2014-2020 reference period, aiming to allow the gradual development of digital facilities for citizens and the business environment through public leverage. Through the Italy Login project, the Government intends to build the „Citizen's Home”, an electronic system designed as an open structure in which the various actors of the administration contribute to their field of expertise. Thus, public administration creates a single platform and provides open data, offering the services available to companies and citizens, because Italian authorities acknowledged the need to develop a new public information system, capable of being more user oriented. Every citizen with his / her digital identity can access all the information and services available at Login Italy: a single access point where ones can receive alerts, payment deadline notifications, make payments, etc.

The operationalization of the strategic reference framework for Italian administration digitalization is achieved through the so-called "Three-Year Plan for IT Implementation in Public Administration". The plan was developed in line with the provisions of Digital Development Strategy, including the necessary actions, the definition of financial needs, indicators, etc., in order to achieve IT&C investments in public sector, correlated with government guidelines and compatible with European objectives and strategies. The plan proposes a model for the systematic and shared management and use of most innovative digital technologies, characterized by agile and advanced management style and effective governance style at all levels of government. The synergy and balance between the three directions (innovative technologies, agile management style and an efficient governance model)

ensure the benefits of new technologies in public administration at a higher level and provide citizens with an advantage in terms of simplifying access and improving digital services.

The Digital Italian Agency has taken responsibility for the three-year plan for IT implementation in public administration, providing the necessary technical assistance to central and local public administration bodies.

Italy has published the third Follow-up Action Plan of the Open Government Partnership, the result of the joint effort of more than 20 public administrations and the First National Open Government Forum, attended by more than 60 organizations (universities, research centres, consumer associations and professional associations). With this new plan, the Italian government has strongly revived its commitment to open governance, administrative transparency, digital citizenship, citizen participation and responsibility, which are also the fundamental objectives of the Italian public administration reform.

The plan contains 34 actions divided into three major themes of interest: (1) open data and transparency (12 actions), (2) participation and responsibility (16 actions), and (3) digital citizenship and innovation (6 actions). The plan includes actions that will allow the Italian administration to continue opening, in line with the values promoted by the Open Government Partnership: access to the public sector, civic participation, accountability and digitization of public administration.

Following the adoption of Freedom of Information Act, part of the Italian public administration reform, the Government has made efforts to ensure citizens' right to access administrative information and monitor its implementation. Being among the first countries to join the International Open Government Charter, Italy now benefits from a new policy on open data in public administration, focusing on the priority given to civil society requests, improving the quality and availability of information, increasing transparency and promoting the re-use of published data.

The third action plan offered Italy the opportunity to continue various projects in the field of administrative system digitalization, such as Soldipubbici, OpenCoesione, ItaliaSicura and Opencentieri, as well as the opportunity to launch new initiatives on the transparency of government investment. Furthermore, the plan includes the participation of local, municipal and regional government in projects relevant for the prevention of corruption and protection of digital rights.

The implementation of Italian Digital Agenda required, requires and will require the coordination of several actions and interventions by the public administration, business environment and civil society, involving the management of different national and Community funding sources (at central and regional level).

The main e-government platform

The www.normattiva.it[69] portal was created by the Presidency of Italian Council of Ministers in cooperation with the Parliament, Supreme Court of Justice and the Official Monitor (Istituto Poligrafico e Zecca dello Stato) as the only free access point to Italian law. The portal, available since March 2010, currently includes all laws in force since 1981, but also the full Italian government law (about 75.000 documents). The legislation available on the portal is systematized according to its

[69] https://www.normattiva.it/.

importance and complexity in several categories: Constitution and codes, national legislation, regional legislation, approved normative acts pending for publication etc. In order to accurately identify a specific normative act, the portal is provided with a search module (simple and advanced).

The eGovernment Portal for business environment, www.impresainungiorno.gov.it[70], was launched in March 2005 as the only access point for online business and entrepreneurship services. Users can access digital information about public services provided by the central government, regions, provinces and municipalities that exceed 25.000 inhabitants, as well as a number of other entities, including cadastre authorities, local health authorities and chambers of commerce.

User access to forms and online services is customized by three thematic areas: (1) companies and public administration, (2) company development, and (3) innovation and training. A specific section of the portal also allows personalized access to an "integrated service virtual office", i.e. services provided by different authorities, but which relate to a single purpose for the user. Access to the integrated services section requires the use of national card public service or smart card features that comply with the specifications of the national service card system. The portal user has access to simplified procedures specific to the public administration's relationship with business environment, as well as a single data transmission and communication with the administration.

The Electronic Governance Portal for Open Data, www.dati.gov.it[71], is the reference point for benchmarking Italian public administrations. It contains the link and description for approximately 150 databases made available by national and regional authorities and institutions at national, regional and local level. The data is available to any person / citizen / user of the portal who intends to use them in order to develop applications for analysis purposes or to develop studies and researches in a complete, fast, and accessible format.

Data is grouped into main areas of interest such as population and society, environment, economy and finance, transport, education, culture and sports, health, science and technology, energy, etc., and can be accessed by those interested in several electronic formats. Also, in the ad section, users are informed about the adoption of strategic documents and relevant legislation in the area of open data and public e-services, at events, competitions, workshops and webinars.

The National Resident Population Register (ANPR)[72] is owned and maintained by the Italian Ministry of Interior. There is a single national database designed to combine the demographic data of all Italian residents, including those living abroad (and registered with the Italian Register of Foreign Residents). Ministry of Interior manages the database through a collaboration with SOGEI SpA, the Central Directorate for Demographic Services, being the controller of data contained in the ANPR, both regarding the preservation and communication of data, and regarding the adoption of security related measures.

The Ministry of Interior is responsible for (1) checking the eligibility conditions for access to services by public administrations and authorities providing public services, (2) ensuring the provision of ANPR services in line with approved technical specifications, and (3) defining together with the National

[70] http://www.impresainungiorno.gov.it/web/l-impresa-e-l-europa/doing-business-in-italy.
[71] https://www.dati.gov.it/.
[72] https://www.anpr.interno.it/portale/.

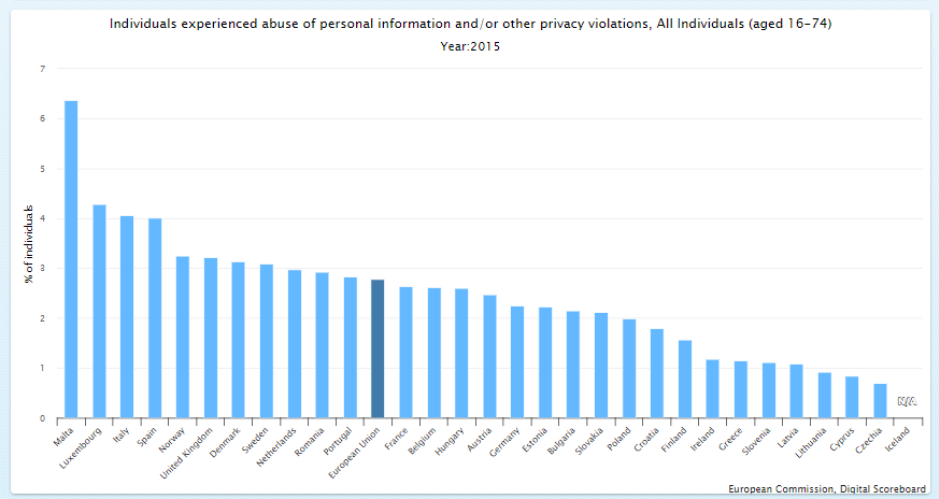
Institute of Statistics, after having consulted the guarantor for the protection of personal data, the standards and indicators aimed at monitoring the quality of data recorded in ANPR. The advantages of setting up the registry were: the use of a single national database allowed the certification of citizen's data in any locality; the registration procedure for transferring residence from one municipality to another has been simplified since the centralized database has enabled the concerned municipalities to immediately have the necessary data to complete the registration in the register. The implementation of National Registry has proven to be a complex process, implemented through a gradual takeover and centralization plan, according to which each municipality will transfer its own registers to the national register.

National context

With values of eGovernment indicators below the European Union average, Italy is in the group of states with unbounded eGovernment system. The system is characterized as achieving a mediocre level of digitization (the extent to which administrative-default and end-to-end processes are available / achievable in the online environment), but an extremely low level of penetration of electronic services (the degree to which widespread use of online channels for accessing public administration services among the population and business environment), as in countries such as the Czech Republic, Cyprus, Germany, Poland and Slovakia. The indicators analysed at European level to define an overall picture of Member States' performance in the digitization of public administration place Italy below the European Union average in terms of population's digital competences (41% compared to the European average of 55%), use of IT&C (37% versus the European average of 53%), quality and openness / transparency of government (57% and 76%, compared to the European averages of 71%, respectively 72%). Italy is below the European average also in terms of connectivity (53% compared to 64% the European average).

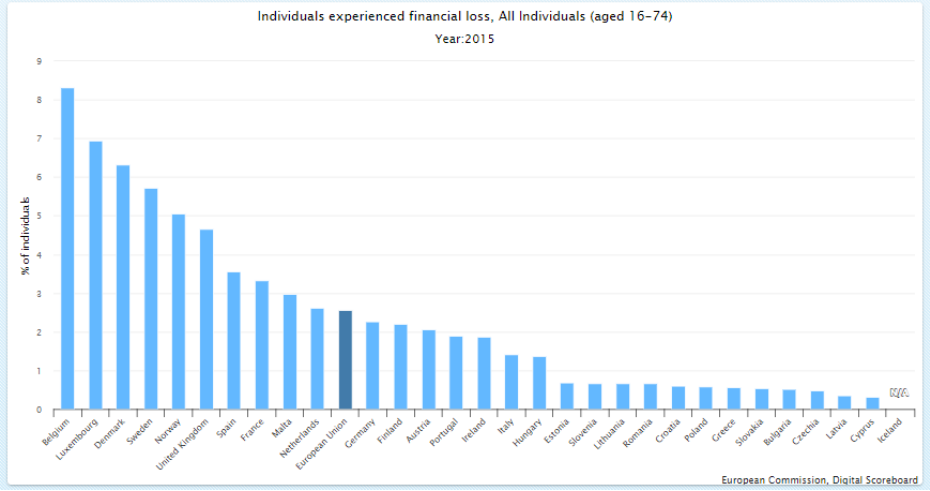
Internet access in terms of speed and national coverage is slightly downward, with Italy ranked the 26th among the EU countries, registering a decrease compared to 2017. National coverage by fixed broadband was 99% (compared to 97% EU average) and the penetration of mobile networks was 86% (compared to 90% the EU average). The 4G coverage was 89%, up from 86% in 2017, but below the European average of 91%. Italy is a pioneer in 5G mobile technology thanks to government-initiated 5G testing initiatives and private operators in a number of cities. "5G in 5 Plan Towns" is the name of the plan that was attributed to the success of 100 MHz in the 3.6-3.8 GHz band in September 2017.

Data security can be analysed through two relevant indicators: Percentage of persons who have been abused by disclosure of personal information or other violations affecting their privacy and the percentage of persons who have suffered financial losses. Considering the indicator "Percentage of persons who have been abused by disclosure of personal information or other violations affecting their privacy", according to the latest available data, Italy is above the European average (recording 4,05% compared to the European average of 2,79%).



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

The percentage of persons who have suffered financial losses as a result of fraudulent use of bank cards resulting from phishing or as a result of redirecting to false web pages asking for personal information ("Pharming"), indicates that Italy is under the European average. Thus, in 2015, 1,41% of respondents said they had undergone these experiences, compared to 2,56% at Community level.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

As regards interoperability, the available information indicates that Italy is well aligned with the European Interoperability Framework in terms of principles, conceptual model and interoperability governance, but also in terms of interoperability levels and collaborative agreements / partnerships / protocols concluded to ensure interoperability. The case of Italy is noteworthy in terms of coordination to ensure the interoperability of systems and databases. Thus, the committee responsible for interoperability is made up of members appointed by ministers (50%) and members appointed by local and municipal councils (50%).

France

Institutional framework

In France, the responsibility for implementing the e-Government strategy lies with the Prime Minister, with the support of the Secretary of State for Digital Sector. The latter ensures the coordination of all activities aimed at modernizing and improving public administration. At the same time, since 2017, two new institutional structures have been created – the Inter-Ministerial Directorate for Public Transformation (Direction Interministérielle de la Transformation Publique - DITP), under the authority of the Ministry for State Reform and the Inter-Ministerial Directorate for Digital Affairs and for the National Information and Communication System (Direction Interministérielle du Numérique et du Système d'Information et de Communication de l'Etat - DINSIC), subordinated, through the Prime Minister delegation, to the Ministry of Digital Sector.

DITP was designated to support ministries and other public institutions to coordinate the modernization of public administration, supervising the implementation of 2022 Public Action Programme[73] (launched in 2017 to improve the quality of public services and ensure a modern working environment for civil servants). DINSIC is responsible for transforming IT systems from public administration and supporting digitization of public services. With its establishment in 2017 through the restructuring of General Secretariat for Modernization of Public Administration (institution that operated in the period 2012-2017), DINSIC took over all the tasks related to the development of e-government, the institution having attributions including in defining IT architecture and solutions of data storage, securing the implementation of major projects at ministries and stimulating the launch of new strategic projects aimed at developing, increasing accessibility and ensuring the added value of existing electronic services.[74]

Strategic framework

At a time when Member States are facing an increase in public budget pressure, the challenge of providing high-quality public services requires organizational technologies and innovations (upgrading) to boost efficiency. The "Modernization of Public Action" is a new tool promoted in France to improve public policies in the field of services offered to citizens.

The "Public Action 2020" programme has been promoted by the French Prime Minister, with objectives outlined in several perspectives: (1) users' perspective: improving service quality, in particular by developing a trusting relationship between users and public administrations; (2) the perspective of decision-makers and civil servants: developing a modernized work environment involving staff involvement in defining and monitoring transformations; (3) taxpayers' perspective: supporting the reduction of public spending with a target of 3% of GDP by 2022. The programme is based on six key principles resulting from the experience of previous reform measures, such as the accountability of ministries as "leaders" for public policies formulated by them, the priority given to the digital transformation of public administration, unprecedented means of transforming the public,

[73] More details can be found at: https://www.modernisation.gouv.fr/action-publique-2022/comprendre/le-petit-dico-daction-publique-2022

[74] Inter-Ministerial Directorate for Digital Affairs and the National Information and communication system (2019): Additional information available at: https://www.numerique.gouv.fr/.

with the mobilization of approximatively 700 million euros over the next 5 years, starting with 200 million euros in 2018, engaging civil servants and public service users throughout the process, and engaging high-level policy makers (President of the Republic and Prime Minister).

The programme implementation calendar consists of two steps. The first phase of the diagnosis lasted from October 2017 to March 2018 and required a review of the public administration and public spending missions, which led to formulate five interdepartmental projects and establish a public action forum involving users and civil servants. After an interim phase of arbitration, in which the President of the Republic and the Prime Minister played a decisive role, the second phase followed, for the operational development and implementation of (ministerial and transversal) plans, which started in March 2018. Among the first concerns of France in relation to electronic public services are the organization of a workshop about digital economy, organized on 28th of February 2013, in which the plan of measures for transition to digital economy in France was defined. This strategy revolves around three pillars: (1) providing opportunities for youth, (2) enhancing competitiveness, and (3) promoting national values in society. Each of the pillars contained a set of objectives. Thus, the first pillar aimed at using digital tools to rethink school education and ensure that all students are familiar with digital tools, have followed information courses and are aware of the historical, cultural, artistic, economic and social challenges entailed by the information society.

It also envisaged transforming universities into more accessible digital ones, ensuring that diplomas can be obtained by completing distance learning programmes and that at least 20% of educational programmes become available by digital means. In addition, emphasis was placed on promoting IT&C jobs in order to increase by at least 3.000 per year the number of graduates obtaining degrees in IT&C related fields of study.

In the second pillar, on strengthening competitiveness, four objectives have been defined: encouraging the development of global digital companies, encouraging research and innovation, ensuring digitization of the whole economy and developing the 21st century infrastructure. The promotion of national values in French society has been transposed into six objectives, as follows: encouraging the use of digital instruments to combat exclusion, protecting sovereignty and creating a climate of trust for citizens, defining a new digital pact for promoting cultural activities, tools and digital resources, promoting the use of digital means in the health sector, increasing the capacity to respond to the cyberspace security challenges.

The main e-government platform

The portal launched in October 2000, "Service-Public.fr"[75], is the access point to relevant information focused on the daily needs and events of public service users. The site provides guidance, documentation, online forms and links to online public services.

Since January 2008, two thirds of the existing administrative procedures in France (about 600) have become fully available online. In February 2008, the portal was enriched with "24h / 24 Administration", a one-stop shop for both citizens and business, able to provide users with the possibility to perform on-line administrative formalities. "Mes demarches 24h/24", the resulting

[75] https://www.service-public.fr/.

section of the French eGovernment portal, includes a search engine that leads to the most complete information about the entered keyword.

A specific section of the portal, www.pme.service-public.fr[76], aims to simplify administrative procedures for business, especially for small and medium-sized enterprises and self-employed. The services provided are supported by an electronic signature system and allow access to administrative forms as well as online completion and return.

Launched in April 2014, the "Simplified Public Procurement" portal[77] allows companies to respond to calls for tender in a much easier way by providing the „Siret" code and a certificate of honour instead of supporting documents. Similarly, starting in 2015, "Simplified State Aid", which is in line with the same principle, is widespread as part of the "Dites-le-nous une fois" programme (one-time principle) aimed at relieving administrative burdens on French companies by reducing the volume of data required in relation to public administrations.

"Beta.gouv.fr"[78] is a portal set up by the Inter-ministerial Department for Digital Business and National Information and Communication Systems as a digital services incubator. It is considered an environment for encouraging start-ups in the field of digital administration with the help of a four-stage methodology: (1) the civil servant investigates an obstacle between the administration and the citizens; (2) two to four persons build a digital product (responding to the identified problem) in less than six months; (3) the team strengthens the facility (software, application, etc.) newly created through the service by expanding the target audience; (4) an institutional operator takes over the service and ensures its sustainability. Up to now, there are some examples of digital public-service start-ups set up within this portal, such as: job finding websites, transport data portals, and environmental protection programmes.

The open data portal of French administration, "data.gouv.fr"[79], hosts data sets produced by corporations, citizens or non-profit organizations as well as government. The portal also displays open data sets published by institutions that have developed their own open data portals by redirecting users to these portals. 2329 organizations provide open data on the French portal in areas such as agriculture and food, education and research, environment, energy and housing, health and social services, international, training, etc.

Launched on 1st of March 2018, the "démarches simplifies" portal[80] aims to simplify public services, allowing French institutions and authorities to create their own online forms. There are over 223 administrative partners on the portal and almost 15.000 files have been added in less than a month. With the available functionalities and an integrated messaging system developed on the social networking model, the portal offers the possibility for public administrations to request various documents from citizens.

[76] https://www.service-public.fr/professionnels-entreprises.
[77] https://www.modernisation.gouv.fr/home/marche-public-simplifie.
[78] https://beta.gouv.fr/.
[79] https://www.data.gouv.fr/fr/.
[80] https://www.demarches-simplifiees.fr/.

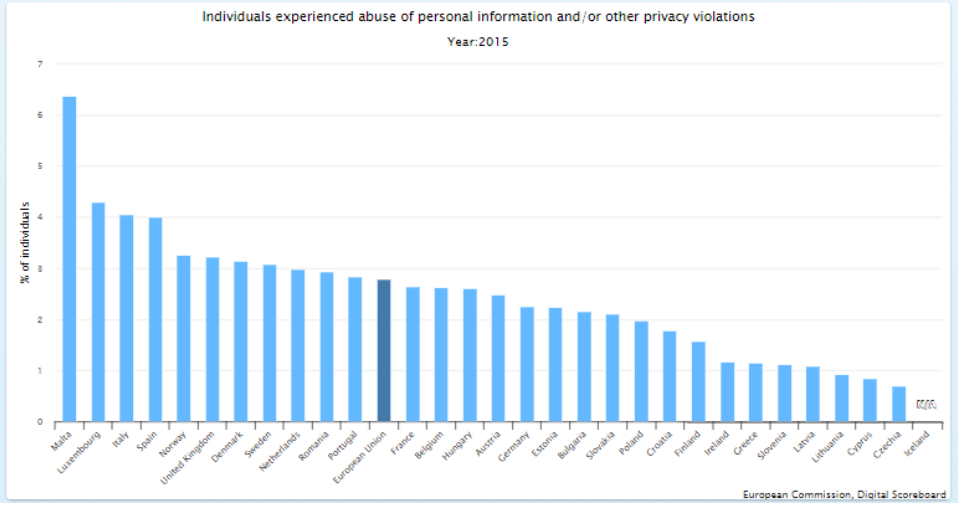
National context

France registers values of e-government indicators generally located above the European Union average, which allows for the classification of States with an advanced e-government system. The French system is characterised as reaching an average level in terms of digitisation (the extent to which the administrative processes-implicit and final offered to citizens are available/achievable in the online environment) and an average level with trends To high penetration of electronic services (the extent to which it is widespread among the population and the business environment the use of online channels to access public administration services), similar to systems in states such as Spain and Italy. Indicators analysed at European level for the assessment of the degree of digitisation of the public administration in the Member States shall raise values above the average of the European Union as follows: the digital skills of the population (59%, compared with 55% average The use of IT & C (42% versus 53% European average), the quality and degree of openness/transparency of governance (74% and 81%, respectively, as opposed to 71% and 72% of European Union environments). France is below the European average in terms of connectivity (56%, compared to 64% European average).

France records values of eGovernment indicators that are generally above the European Union average, which makes it possible to join the group of states with an advanced eGovernment system. The French system is characterized by reaching an average level of digitization (the extent to which the administrative-implied and final processes offered to citizens are available / achievable in the online environment) and an average level with high penetration of electronic services which is widespread among the population and the business environment using online channels to access public administration services), similar to systems in countries like Spain and Italy. The indicators analysed at European level to assess the degree of public administrations digitalization in the Member States highlight values above the European Union average, as follows: population's digital competences (59% compared to 55% the European average), the use of IT&C (42% compared to 53% the European average), the quality and degree of openness / transparency of government (74% and 81% compared to 71% and 72% the European average). France is below the European average in terms of connectivity (56% versus 64% the European average).

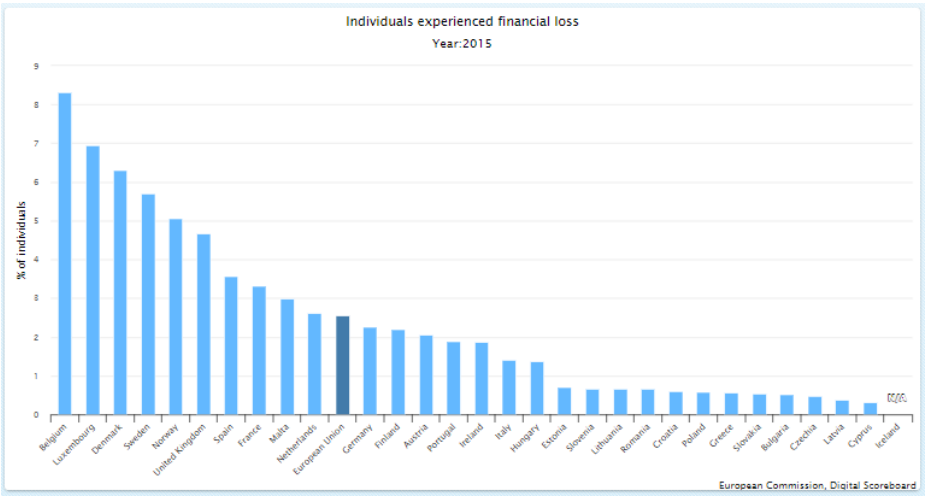
Access to the Internet in terms of national speed and coverage presents a growing trend, with France occupying the 20th place between the community states. The national coverage of broadband fixed networks exceeded 99,5% in 2018 (compared to 97% the EU average). Degree of preparation for the use of networks 5G networks was at 33% compared to the EU average of 14%. The situation of high-performance networks is more complex: only 58% of French households have ANG (Access Next Generation) coverage or fast broadband networks that offer a connection of at least 30 Mbps and only 20% of households use Fast broadband for Internet access. These figures are significantly lower than the EU average, 83% for ANG coverage and 41% for fast networks.

Data security can be analysed in the light of two relevant indicators: percentage of persons who have suffered abuse such as the disclosure of personal information or other violations affecting their privacy and the percentage of persons who have suffered financial losses. Considering the indicator "percentage of persons who have suffered abuses such as the disclosure of personal information or other violations affecting their privacy", at the latest available data France is below the European average (2,64% compared to the European average of 2,79%).



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

As regards the percentage of persons who have suffered financial losses as a result of fraudulent use of bank cards, resulting from the receipt of fraudulent messages ("phishing") or as a result of redirected to false Web pages that require the completion of personal information ("pharming"), France lies above the European average. Thus, in 2015, 3,32% of respondents had mentioned that they had undergone these experiences, compared with 2,56% at Community level.



Source: European Commission, Digital Agenda Scoreboard Key Indicators (2019)

With regards to interoperability, the available information demonstrates that France is well aligned with the European interoperability framework, in terms of principles, conceptual model and interoperability governance, but also from the point of Interoperability levels and cooperation agreements/partnerships/protocols concluded to ensure interoperability. The case of France is noteworthy from the point of view of the strategic, legislative and institutional framework approved to ensure the interoperability of systems and databases in public administrations. Thus, the Référentiel Général d'interopérabilité (RGI), which is the French general framework for

interoperability, was approved on 20th of April 2016, as a result of a collaborative effort beginning as early as September 2014 and facilitated by the Inter-ministerial Directorate for Digital Information and Communication Systems (DINSIC). The General Secretariat for the Modernization of Public Action led by the French Prime Minister is composed of the Inter-ministerial Directorate for Supporting Public Transformation, the Inter-ministerial Directorate for Digital Systems and ICT.

United Kingdom

Institutional framework

The secretariat of the British Government (Cabinet Office) has general responsibility for ensuring the effectiveness of the Cabinet and on implementing the Agenda for public administration reform. In this respect, aspects of e-government are under the political responsibility of the Ministry for Implementation, within the Cabinet, the Government Digital Service (GDS) being subordinated to it and having responsibility for the development of common platforms and electronic services, providing the Cabinet with support in identifying technical solutions, ensuring the implementation of digital development projects and setting standards for Electronic public services[81].

Strategic framework

With regards to the relevant strategic framework for e-government, a number of key documents have been adopted in 2017 in order to shape the priority directions and action lines with a view to improving and streamlining public services. In this respect, the Strategy for governmental transformation 2017 – 2020[82] is based on three main pillars:

- Transforming services offered directly by public administration – this objective aiming to improve the interaction experience of citizens, businesses and any other entities with public sector;
- Transforming governmental departments – aiming for an institutional reorganization to improve the attainment of public policy objectives, interaction with citizens through different channels and institutional efficiency;
- Internal governmental transformation – aiming to improve cooperation across the various agencies and governmental institutions with a view to delivering more efficient digital services to citizens.

In order to achieve these objectives, the typology of envisaged actions includes the professional development of administrative apparatus, improvement of physical and technical infrastructure in the administration, streamline data use and development of common platforms.

[81] Government Digital Service (2019): https://www.gov.uk/government/organisations/government-digital-service/about#who-we-are.
[82] Strategy for governmental Transformation 2017 – 2020 (2019): Additional information can be found at: https://www.gov.uk/government/publications/government-transformation-strategy-2017-to-2020/government-transformation-strategy.

Another important key document for e-government is the Digital Strategy of United Kingdom[83], launched at the beginning of 2017, detailing the action lines on 7 key coats:

- Connectivity – with a view to creating a reliable digital (globally recognised) infrastructure that supports rapid traffic growth, ensures broad coverage as well as sufficient capacity to ensure a high amount of data – needs of a modern life.
- Digital skills and inclusion – with the aim of ensuring access for all categories of population to opportunities available through digitisation, by diminishing digital exclusion.
- Creating a significant environment for business development in the digital sector – with a view to reaching by 2025, a contribution of this sector to the national economy of 200 billion pounds.
- Ensuring the conditions for digitising all businesses in the UK – aiming to encourage digitisation of firms ' internal procedures and functions regardless of their size.
- Ensure safe and secure cyberspace – targeting the development of infrastructure to defend against cyber-attacks, discouraging hostile actions and developing private industry in the cyber defence sector.
- Maintaining UK in a leading position on the market of quality public digital services offered to citizens – aimed at transforming the government into a digitised organization responsive to the needs of users.
- Streamlining the use of public data and increasing the confidence of population in the data management by public administration.

What needs to be said in the case of this strategy is that its development involved a collaborative exercise of the relevant institutions with stakeholders in the private sector to outline not only a document anchored to citizen's needs, but also in order to ensure a high degree of successful implementation of public policies in the field of digitalisation. The strategy is in this regard a first starting point in an increasingly open communication between the public and private environment, dialogue supported by the development of a forum dedicated to digital development in the UK, gathered under the patronage of the Secretary of State for Culture, Media and Sport[84].

The relevant strategic document series also includes the National Cybersecurity Strategy 2016-2021[85] (for whose implementation was allocated 1,9 billion pounds), the Digital Charter[86] (published in 2018 and aiming placing UK between the states that provide an optimal environment for digital business start-up and the safest place for online browsing) and the Governmental Strategy for Digital Inclusion, the latter aimed at developing solutions to support citizens to the widest possible use of Internet for the widest possible achievement of its benefits.

[83] UK Digital Strategy 2017 (2019): More information can be found at: https://www.gov.uk/government/publications/uk-digital-strategy/uk-digital-strategy

[84] European Commission (2018): eGovernment in the United Kingdom, available at: https://joinup.ec.europa.eu/sites/default/files/inline-files/eGovernment_in_United_Kingdom_2018_0.pdf.

[85] https://www.gov.uk/government/publications/national-cyber-security-strategy-2016-to-2021

[86] https://www.gov.uk/government/news/digital-charter-will-set-new-online-standards-for-years-to-come

Main e-Government platform

The "Gov.uk" platform[87] is the website of UK Government on the basis of which citizens and businesses at have easy electronic access to all electronic public services as well as information on the administrative procedures related to these services. The platform became accessible in 2012, with the role of a unique contact point for public services replacing Directgov and Business Link platforms as well as the individual websites of hundreds of government agencies and other public institutions. Over 380 such platforms have transited to the single point of contact and about 1800 have been closed, this process being completed in 2014.

National Context

As regards the national context of performance in e-governance, the UK is characterised by a high degree of penetration defined as the extent to which the use of online channels by public service users is widespread, i.e. reaching an average-low level in terms of digitisation, defined as the extent to which the administrative-implicit and final processes offered to citizens are available/achievable online. From this point of view, UK is placed in the non-exploited e-government scenario that includes states that may be in a process of digitisation, but which have a high number of citizens using public electronic services. With regard to the indicators analysed at European level in order to drawing up an overview of the performance achieved in the sphere of digitisation, UK exceeds the European average in terms of population's digital skills (72%, reported value for 2018, versus the European average of 55%), the use of ICT (62% versus the European average of 53%), the quality and degree of governance openness (83% and 77% in the case of UK versus 71% and 72% the European average) and connectivity (69% versus the European average of 64%).

As regards access to Internet in terms of national speed and coverage, the UK is placed at the forefront of the EU Member States in terms of coverage at national level through fixed broadband networks (with a coverage of 100% in 2019), and on the second place in Europe as regards the penetration of broadband fixed networks. The penetration of mobile networks is also one of the highest at European level (placed the 10th in 2019), lower performances being registered only for high-speed and very large connections (but also in this case, it is placed the 12th and 18th at European level in terms of high-speed broadband services coverage). As far as the countryside is concerned, the UK is considering the full coverage with fibre optics up to the level of 2033, the Rural Gigabit Connectivity programme representing a first step towards this objective (amounting to 233 million Euro).

As far as data security is concerned, the UK is above the European average in terms of values recorded for indicators "percentage of persons who have suffered abuses such as the disclosure of personal information or other violations affecting their privacy" (3,22% versus the European average of 2,79%) and "percentage of persons who have suffered financial losses due to fraudulent use of bank cards, resulting from receiving fraudulent messages ("phishing") or as a result of being redirected to false webpages requesting the completion of personal information ("pharming")" (4,66% versus the European average of 2,56%).

As far as interoperability is concerned, the United Kingdom has developed a code of technical practice that establishes 14 guidance points that government agencies have the obligation to pursue in the

[87] https://www.gov.uk/.

development or procurement of technical solutions to supply of electronic public services. The second guidance line is aimed at interoperability, establishing the obligation for public institutions to promote the sharing of information systems and to ensure the flexibility of developed technical solutions. Furthermore, with the aim of enabling interoperable and open ICT solutions, so that they can be shared and reused, providing common language, terms and descriptions to identify common business areas, data, applications and technologies, the Government published the ICT Reference Architecture for the British Government (UKRA) 7 which contains reference models for different life events.

Electronic identity – A comparative perspective

As a starting point in exploring different identity management systems, we will define the concept of identification as representing all the specific characteristics of a person based on which it can be distinguished from other individuals. The determinant of identity, in a legal sense, implies the attribution to a person (physical or legal entity) of personal data, officially registered and based on characteristics that facilitate the distinction of a person (such as name, date of birth, gender, etc.). Thus, identification is done by national authorities by means that vary from the visual inspection of the issued documents, to the use of electronic means (e.g.: the development of identification documents that can be read automatically) and more recently by methods for the remote identification.

Starting from this definition, at the generic level, the concept of "electronic identity" (e-ID) represents a means by which citizens can prove their identity and through which they can gain access to different services. Although sometimes convergent, the concept of electronic identity differs from that of the digital identity card, the latter representing a physical medium through which the electronic identity can be "delivered". However, in presenting the different identity management solutions, two different functions must be differentiated: namely electronic identification and authentication. As noted in the literature[88], identification involves the process required to perform unique verification or identity determination while authentication involves demonstrating the authenticity of a statement of intent or action (meaning that the declared author of a statement or action is the real one). Most electronic identification systems generate a unique identity to a person by linking it to one or more unique numbers (e.g. unique identifiers). This process involves either generating a unique identification number, or using existing unique number public registers, aggregating different unique identifiers for different public services.

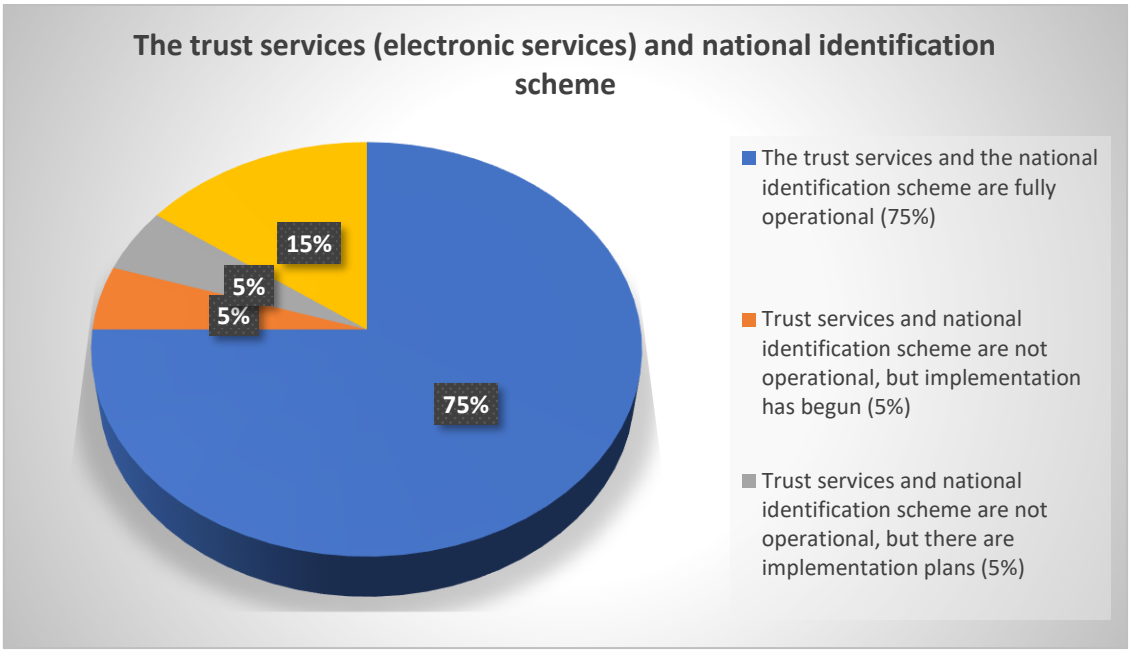
The electronic identity can be hosted on various physical media that can range from digital cards, USB tokens and mobile phones or can be completely independent of them (e.g. taking the form of a unique identifier at the national registry level). In this sense, the technological landscape for electronic identification is characterized by three main categories of technologies used for electronic identification and authentication:

- Credential-based technologies (digital cards, mobile technologies, etc.);
- Technologies based on trust services;
- Analytics technologies[89].

[88] G. Lentner; P. Parycek (2016): „Electronic identity (eID) and electronic signature (eSig) for eGovernment services – a comparative legal study", in *Transforming Government, People Process and Policy Journal*, Vol. 10, No. 1, pp. 8-25.

[89] World Bank (2018): *Technology Landscape for Digital Identification* (Washington, World Bank), available at the following link: http://documents.worldbank.org/curated/en/199411519691370495/Technology-Landscape-for-Digital-Identification.pdf

Starting from the questionnaire applied at the level of the representatives of the European Public Administration Network regarding electronic public services, 75% of the respondents stated that at the level of the Member States represented the trust services and the national electronic identification schemes are fully operational, even if the dates from which they became operational varies substantially from the beginning of the 2000s (in the case of countries such as Finland and Estonia) until the end of 2018 (as is the case of Romania and the Czech Republic).



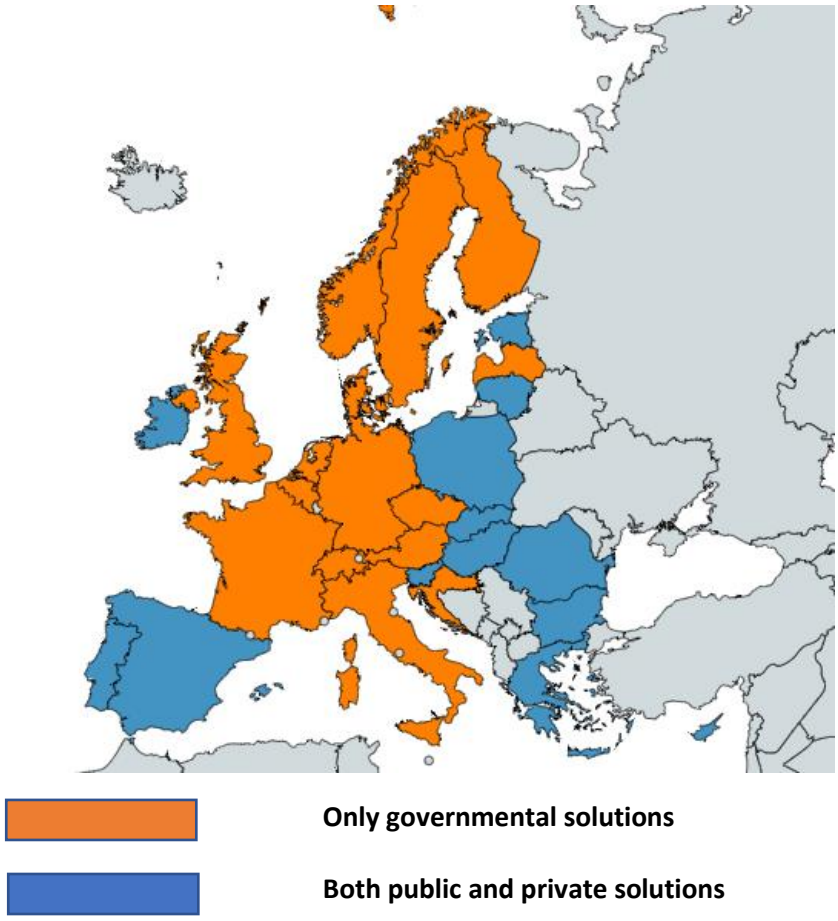
Source: Authors' interpretation of the data collected through questionnaires

In 15% of the cases, the respondents mentioned that at national level the trust services and the national electronic identification schemes are not operational and there are no implementation plans for the near future.

A recent analysis of all types of electronic identification initiatives in Europe[90] has shown that most of them are government initiatives predominantly based on public sector identification means (out of 94 identified solutions, 48 are governmental solutions). Generally, these public solutions are national digital cards. With regards to private electronic identification solutions, these are generally developed for the banking and telecommunications sectors. Another 3 initiatives identified were developed on the basis of public-private partnerships (PPP) at the level of countries such as Finland (the identification system for the Tupas banking system[91]) and the Netherlands (the eHerkenning system

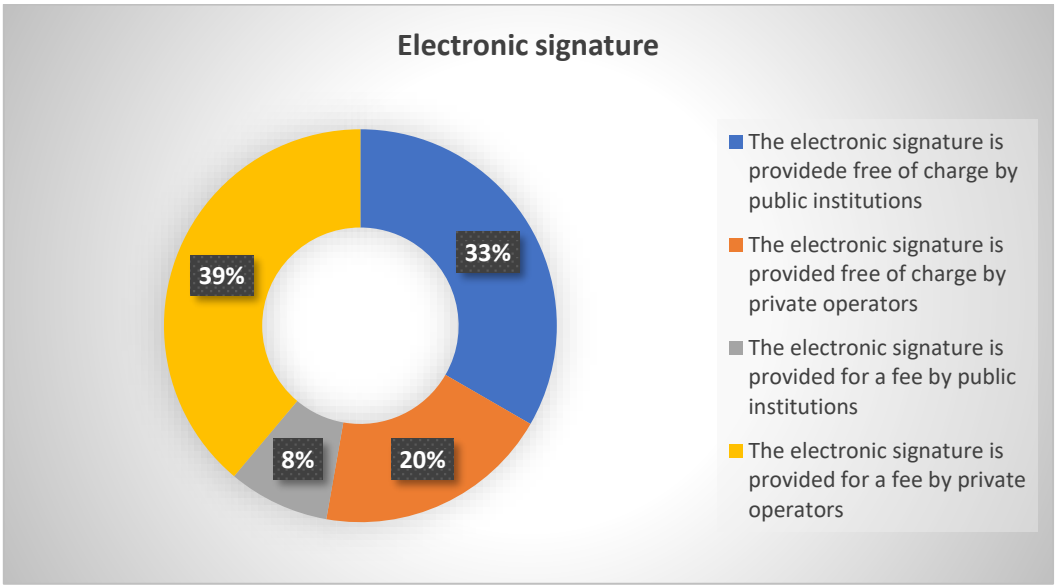
[90] A. Müller, A. Windisch (2018): „E-Identity Solutions in Europe – An European Overview", available at: https://asquared.company/public/asquared-blog_post_en_2018-02-13_e-identity-solutions-in-europe_v1.pdf
[91] Finnish Federation of Financial Services (2013): Tupas Identification Service. Identification Principles, available at: https://www.finanssiala.fi/maksujenvalitys/dokumentit/TUPAS_identification_principles_v20c.pdf

for legal entities and the Idensys system for citizens). One such example is the eHerkenning authentication system, implemented in the Netherlands, through which legal or designated representatives of companies can authenticate through a unique digital key for different electronic services. Users can login for different services based on an eHerkenning token that will verify both the identity of the user and the fact that the user is authorized by its organization to use the service on behalf of the entity. The system is based on a trust framework that was created by the Dutch government (Ministry of Internal Affairs and Relations with the Kingdom) in cooperation with organizations and businesses in the private sector, the system not being a unique technical tool, but created by several accredited suppliers forming a network[92].



Source: „E-Identity solutions in Europe – An European Overview"(2018)

[92] https://www.eherkenning.nl/english/public-prive-cooperation.



Source: Authors' interpretation of the data collected through questionnaires

With regards to the regime of electronic signatures provision, the questionnaire applied through the EUPAN network also reflected a significant diversity. Thus, in the case of about 33% of the represented states, the electronic signature can be obtained free of charge, being provided by public institutions. This system has been reported to be implemented in Greece, Malta, Portugal, Germany, Slovakia, Luxembourg, Spain, Sweden, Belgium, Slovenia, Austria and Italy. 39% of the respondents also mentioned that at the level of the represented states, the electronic signature can be obtained for a fee, the signature being provided by various private operators. In 8% of cases it was mentioned that the electronic signature is provided by public institutions for a fee. This system was cited at the level of Croatia, Spain and Italy.

Regarding governmental solutions for the electronic identification of citizens in the case of the Member States selected for analysis (i.e.: Malta, Portugal, Netherlands, Belgium, Ireland, United Kingdom, Spain, Italy and France), at the level of Malta, for example, the government operates a series of identity management systems including operating national registers, specialized infrastructure for electronic identity, an electoral system, a system of national identity cards and a passport system. Since 2014 Malta has implemented an extensive program for issuing digital identity cards (Malta Identity Agency (IMA) taking over the responsibility of issuing electronic identity cards for Maltese citizens and the related virtual accounts[93]). Based on this program, Maltese citizens over the age of 14 are issued with a digital card based on which they have access to public electronic services (except for the electronic signature certificate, available only to citizens over 18 years of age). The digital card contains an electronic chip with the same biographical information printed on the card and includes two digital certificates a qualified one for authentication, based on which the holders can access governmental electronic services (e.g.: service.gov; myhealth etc.) and one for the electronic

[93] https://identitymalta.com/id-cards/.

signature[94]. At the same time, Malta is considering the future replacement of these digital cards with new media that will contain additional biometric information and will benefit from additional security features[95].

In the case of Portugal, the Citizen Card (Cartão do Cidadão) was introduced in 2007 in a pilot phase (at the level of the Azores region), being extended at national level in the following year, while starting with 2014, the identity documents based on paper support have been completely replaced with the new digital identity card. The Citizen's Card was developed following an initial administrative simplification process, taking over the role of four other physical identification documents: the taxpayer's card; the National Health Service Beneficiary Card; Social Insurance Card and Voter's Card[96]. The card also allows the holders to electronically authenticate in order to access government digital services as well as to apply the digital signature on declarations and other administrative documents. Since 2014, over 45% of the holders had activated their digital certificates included in the card. The National Printing Company of Portugal (INCM) selected a private economic actor who was responsible for delivering the digital security solution for the national card, the secure operating system, the personalization system and the associated applications, middleware and support services.

In the case of the Netherlands, the approach for electronic identification is based on a scheme that combines public and private authentication solutions. The public solution for citizens' authentication is represented by DigiD, a system of identification (unique username and password) operational since 2005 (the version for companies being operational at the end of 2005) based on which users authenticate on government portals, being able to interact with public authorities. As DigiD sends to the authority concerned the Citizen Service Number (unique identifier) upon each authentication performed on a government portal, the authorities can identify the users exactly based on the files and personal information in the public registers. DigiD is available in three forms: the basic one (DigiD username and password); the medium one (DigiD and SMS authentication or via a DigiD mobile application) and the substantial one (DigiD application enhanced by identity verification). Although the use of DigiD is not mandatory by law, the system has become the main method of authentication. Thus, in 2017 there were 13.5 million active DigiD accounts - offering access to 871 electronic services managed by 623 public institutions. With regards to the authentication of government agencies and of companies, the trust framework is represented as previously mentioned by eHerkenning (eRecognition), a facility through which entities can access public electronic services. The persons authorized by the entities are authenticated using an electronic device (token), having the possibility to go through only the procedures for which they have been designated. 280 thousand eHerkenning authentication devices had been issued in 2017 and over 6 million authentications had been made through this system[97].

[94] European Commission (2018): „eGovernment in Malta" (Brussels, European Commission), p. 27.
[95] Independent (2019): „Malta to kickstart process to get new e-ID cards and e-passports by end of year" (Independent, 26 martie 2019), available at: http://www.independent.com.mt/articles/2019-03-26/local-news/Malta-to-kickstart-process-to-get-new-e-ID-cards-and-e-passports-by-end-of-year-6736205719.
[96] OECD (2009): *Making Life Easy for Citizens and Businesses in Portugal. Administrative Simplification and e-Government* (Paris, OECD) p. 4.
[97] European Commission (2018): „eGovernment in Netherlands" (Brussels, European Commission), p. 23.

In the case of Belgium, the national digital identity card (BelPIC) was launched in 2003, up to the level of 2011 all citizens (aged over 12 years) having been issued such a card. The card usually includes information that is usually found on an identity document (including the national registration number, unique identifier inscribed on the electronic microchip), having the role of identification and travel document. It also includes two digital certificates, one for authentication, based on which citizens can access more than 800 public electronic services and one for generating the electronic signature, offering the possibility to submit documents to public authorities. At the level of 2016, over 70% of the users of public electronic services used the digital identity card for authentication, and about 3.6 million users had used BelPIC to perform over 30 million secure operations.

In the case of Ireland, the Public Service Personal Number (PPS) is the unique identifier through which citizens can gain access to a number of public services. PPS is issued to every citizen at birth and is used to access social services, medical services etc. Through the MyGovID facility, citizens benefit from a unitary / unique digital identity (based on a password) for accessing various public electronic services (including mobile optimized platforms). The physical variant of the MyGovID facility is that of the Card for Public Services (PSC), based on which citizens can access various public services through different channels (including online, by telephone or at the counter), avoiding duplication of information and ensuring the security of personal data. Since 2011 about three million cards have been issued for citizens over 16 years (imposing physical presentation at the counter), these cards replacing in the future a number of other documents (e.g.: Social Insurance Card).

In the case of the United Kingdom, the Gov.UK Verify facility allows individual users to prove their identity when accessing government electronic platforms and public electronic services. Through Gov.UK Verify, users create an account through a private digital certificate provider for identification (which has the role of checking identity based on the records of the various public agencies), then having access to over 17 government services (including accessing the public pension, obtaining a driving license, checking the annual value of the income tax, etc.) provided by 8 public agencies[98]. At the level of 2018, over 2 million people had created a Verify account, completing over 6 million secure transactions in interaction with government agencies[99].

In the case of Spain, the national electronic identification card (DNIe) was issued from 2006 onwards (when it was regulated under the Royal Decree no. 1553/2005), at the level of 2011 over 25 million citizens holding such a card[100]. In order to develop the digital card, the Data Processing Center within the Police Directorate General (DGP) collaborated with the National Printing Company (FNMTRCM), which was responsible for the development and production of the document and the supporting key infrastructure. The DGP also benefited for this project of technical assistance provided by Ingenieria de Sistemas para la Defensa de Espana S.A., a public company created to provide technical support and consultancy for the development of new technologies for the civil and defence sectors. The electronic card contains two categories of biometric information - a photo of the holder and a digital fingerprint, both stored on a microchip. It also includes the signature of the holder as well as two

[98] https://www.gov.uk/government/publications/introducing-govuk-verify/introducing-govuk-verify.
[99] European Commission (2018): „eGovernment in the United Kingdom" (Brussels, European Commission), p. 29.
[100] G. Galdon Clavell, P. Ouziel (2014): „Spain's documentp nacional de identidad. An e-ID for the twenty-first century with a controversial past", in P. Ouziel, *The History of Surveillance in Europe and Beyond* (London, Routledge) p. 142.

certificates - one for authentication and one for digital signature. The microchip contains three "areas" of information having different levels of access: a public area that can be accessed without restriction containing the certificates of the provider and their components, a private area that can only be used by the DNIe holder based on a Personal Identification Number, containing the electronic signature and a security area that can be accessed by the holder only at authorized access points containing the original picture of the holder, the signature and the data included in the identity card. The card currently offers many tangible benefits, giving holders the opportunity to identify and sign electronic documents, giving both citizens and government agencies the opportunity to interact online through the use of e-administration services and giving private companies the possibility to interact in new ways with customers and service providers. However, there are still some problems encountered regarding the degree of citizens' use of the DNIe in relation to public authorities, the most important factor in this regard being the need to use the electronic card only with a reading device, which at present it is no longer distributed free of charge (costing approximately 20 Euro).

In the case of Italy, the electronic identity card (CIE) development program was launched in 2001, and after two phases of testing, the card was issued at national level and distributed to citizens over the age of 15. Beginning with 2016, an updated form of the CIE has been launched by the government (*Carta d'identita elettronica* or CIE 3.0), the new card containing a microchip, an optical memory and an ICAO area that can be read automatically for the use of the identity card as a travel document. The card contains a series of personal data such as the user's tax code, blood group and fingerprint scans (stored in both the microchip and optical memory), both the biometric data and the digital signature being stored on it. According to the legislation in force regarding the protection of personal data, the data of the holders are not stored at the level of a centralized database and can be released and used only if the holder gives their permission by entering the PIN code. Through the microchip, users can identify themselves online and carry out transactions, including electronic payments. In addition to the above-mentioned identification data, version 3.0 of the card offers the option of mentioning the status of the organ donor holder. CIE is, first and foremost, an easy means of electronic authentication for accessing e-government services, and the card can be used with a PIN for authentication. To date, about 8 million such cards have been issued and delivered to users, over 7,500 municipalities having the possibility to issue these cards out of a total of about 7,900, in order to speed up the registration process for issuance being otherwise launched. application with the role of facilitating the management of the preliminary phases of the card issuance request[101].

In the case of France, the access of citizens and companies to electronic public services is ensured on the basis of the portal www.service-public.fr, the authentication being achieved through the electronic signature. Thus, only digital certificates provided by qualified certificate providers are eligible for facilitating the electronic interaction of citizens and companies with government institutions. The portal, launched in 2000, represents the access point for obtaining practical information aimed at different life events, while also providing users with access to documentation, online forms and references to online services. As of 2008 about two thirds of the administrative procedures were available to be completed completely online. As for the solution of authentication

[101] https://www.gemalto.com/govt/customer-cases/new-national-identity-card-for-italy.

based on an electronic identity card, this option is not yet implemented, with the option of authentication based on the electronic signature to access e-government services being preferred.

Ending this brief analysis of e-ID solutions implemented at European level, it appears that more and more Member States are engaged in a stable and continuous process of developing such initiatives. To a large extent, governmental solutions take the form of digital identity cards, which are both meant to facilitate citizens' access to electronic public services and to ensure beneficiaries' access to digital certificates in order to facilitate communication with public institutions.

Difficulties encountered in the provision and use of electronic services and measures taken

In order to identify the difficulties encountered in the provision and use of electronic services at the level of service providers in the public administration of EU Member States, a survey based on questionnaire was applied by the Romanian central public administration among the homologous structures represented at the level of EUPAN network, on the basis of which data were collected in connection with the use of electronic public services.

In order to achieve a detailed insight into the difficulties encountered and the solutions undertaken at European level, a questionnaire has been elaborated and disseminated to the representatives of central public administration from EU and to the observatory Member States in order to understand the general context of development, implementation and use of public electronic services, as well as to understand any difficulties recorded by EU Member States in the use of electronic services in public administrative and to identify effective measures to increase the use of these services. The questionnaire was distributed within the European Public Administration Network (EUPAN), with replies from 20 Member States. The distribution of responses has allowed a balanced perspective at European level, as well as a useful diversity of perspectives reflecting the views of European central administrations to e-services for public administrations.

Below are summarised in brief the interpretations of data resulting from the questionnaire survey, in the idea of providing a preliminary overview regarding the difficulties encountered in the provision and use of electronic services, as well as the solutions to mitigate these barriers within the respondent Member States (Netherlands, Greece, Malta, Switzerland, Portugal, Croatia, Germany, Estonia, Ireland, Slovakia, Luxembourg, Finland, Spain, Sweden, Czech Republic, Belgium, the Republic of Slovenia, Austria, Italy and Romania).

From the perspective of the most relevant barriers/obstacles/problems encountered by the respondents in the use of electronic public services, each state participating in the questionnaire-based survey identified specific situations with which it was confronted, while mentioning the solutions/ways in which they were exceeded.

Thus, in view of the difficulties and barriers existing **in the use of electronic public services**, data collected at the level of the 20 Member States indicated that the lack of awareness among citizens about the electronic services available to them is most often perceived by respondents as an obstacle to the use of public services. In this respect, 50% of the replies indicate this as one of the most important and relevant problems in the use of electronic services, and the distribution of responses by geographical territory does not indicate significant differences, for example between Western Europe and Eastern Europe. Other common barriers perceived by citizens include the lack of digital

skills of potential users, the perceived complexity of online services and platforms, and the lack of confidence of potential users with regard to the safety of their personal data. The heterogeneity of public sites has also been referred to as an issue combining both the lack of awareness among users about the services available and the high level of complexity of the services, perceived by the respondent States.

Key terms frequently used to identify barriers/obstacles encountered in the use of electronic public services

Source: Author's interpretation of data collected through questionnaires.

Related to the analysis of electronic public services characteristics, more than 16% of respondents identified the insufficient degree of ease in the use of electronic public services as an important factor that negatively influences the general use, an important aspect being that the countries represented in the sample identifying this problem, present the highest scores for the user-centred approach indicator [102] (a key factor assessing how fast and easy are used public information and online services). The lack of a single portal for all electronic services or the dispersion of information on several sites was cited by 16% of respondents as being difficulties in using public services, while a percentage of 16% have considered that the lack of availability of e-identification (and electronic signature) services prevented the wider use of electronic services.

[102] Based on information available at the level of European Commission (2018): Electronic information brochure on e-Governance 2018 (Brussels, European Commission), Estonia, Luxembourg and Belgium by registering scores over 80 from the perspective of this indicator.

With regards to the solutions implemented by the Member States participating in the questionnaire-based survey in view of mitigating the impact of these factors, more than 27% of respondents mentioned the start of awareness initiatives whereby citizens have obtained more clearly structured information on available electronic services (large-scale information campaigns being the most important solutions in states such as the Netherlands and Malta), while in 11% of cases were favoured solutions aimed at vocational training-either those for citizens (as is the case with Portugal, through the INCoDe 2030 Action programme, which attempted to reinforce population's basic competences) or those intended for public institutions (as was the case in Malta). In the case of Italy, the heterogeneity of public sites has been addressed by developing common guidelines and facilitating collaboration between public entities that have proposed designing electronic public services with a focused user approach. At Romania's level, the problem with the lack of basic digital skills among the population was addressed through the adoption of a digital literacy policy.

The development and implementation of the "One Stop Shops" solutions was mentioned by 40% of respondents as an important solution for solving the difficulties encountered, while 22% of respondents consider as a priority the measures to development authentication mechanisms that provide users with the possibility of single authentication when using multiple electronic services and accessing different online public platforms.

From the analysis of data collected from the Member States involved in the questionnaire-based survey, there were identified the most relevant barriers/obstacles/problems encountered in the provision of electronic services at European level, as well as the ways in which they have been overcome

Analysing the prospect of providing electronic services, the most common barriers, identified by respondents, concerned the lack of specialised human resources and the absence of sufficient financial resources (more than 35% of replies), followed by difficulties of organizational nature (over 33% of replies) - a framework/general concept comprising a range of factors, from the difficulties encountered in establishing cooperation between different public administration institutions, to the way in which public administrations are organized and finally to legislative barriers (33% of registered responses). In the case of Switzerland, the lack of human and financial resources is referred to as the most important barrier to the digitisation of administrative processes. One example of this is the fact that at the canton level a little over half of the cantonal administrations allocated in 2017 at least 50% of the human resources available for electronic governance issues, while at the commune level about half of the establishments mentioned that they generally allocate less than 5 hours per week for e-government issues. In the case of Romania, the high costs of the certificates for the electronic signature represented a barrier in terms of their wide use, a problem that was overcome over time by increasing the competition between the certified providers which led to the gradual decrease of these costs.

With regards to organisational barriers, two main factors have been identified in the case of Greece which generate an important impact on the provision of electronic services. On the one hand, there are factors linked to the complexity of administrative processes involving several authorities, and on the other hand, there are a large number of documents which have not been issued to date

electronically and which cannot be regarded as valid evidence in the provision of electronic services, only because they have been transmitted electronically. As regards Portugal, the way in which public administration was organised from ancient times was a barrier that influenced the provision of electronic information, while in the case of Germany the federal structure of the state itself was mentioned as having an impact on the modernisation of public administration.

Other important issues that were mentioned by respondents concerned legislative issues, for example in the case of Ireland, by entering into force, starting with 2018, the EU regulation on general data protection, which generated fear among users on how to use the data, while in Austria the lack of a specific legislative framework affected the implementation of the single-date (Once Only) solutions.[103]

Key terms frequently used to identify barriers encountered in the provision of electronic public services

Source: Author's interpretation of data collected through questionnaires.

Related to the use of solutions implemented to overcome the difficulties previously presented, various responses have been recorded, indicating a high level of awareness of the most important problems affecting the development of electronic services and a good understanding of their nature, causal links and effects produced. As such, the solutions presented by respondents appear to have been tailored to address the main causes of the obstacles encountered. Thus, if the absence of qualified staff was referred to as a difficulty, complex large programmes were identified to support the development of

[103] The "Once Only" principle refers to the fact that citizens and businesses provide various data only once in relation to public administrations, while public institutions take measures to make them available internally and to reuse this data - even outside the borders - always in compliance with data protection regulations and other constraints of this type.

digital skills by creating the educational context and necessary infrastructure. Such an example is registered in Luxembourg, which developed a complex educational strategy (***Digital (4) education*** launched in 2015), which attempted to prepare youngsters for a complex working environment which is constantly changing, to promote new apprenticeships and innovative educational programmes, projects based on the use of digital technology in school and in the world around school, the formation of future ICT experts and the promotion of entrepreneurship in this sector. In this respect, through the ***Future Hub*** programme (component of the Strategy) initiated in 2017, high schools undertake to develop their IT infrastructure and teaching methods to allow students follow their passions while acquiring technical scientific competences necessary to achieve their own objectives. These schools offer innovative courses specializing in ICT (cloud computing, game development, IT and communication), as well as informal opportunities for students and regional participants to discover scientific activities, such as robotics laboratory, coding clubs and traditional science facilities. Luxembourg also takes measures to improve the infrastructure (an initiative to purchase tablets for 50% of all high school students, which is at the second year of implementation) and the curriculum of specialised high schools, in order to allow students to follow their passions and achieve their proposed goals. Through the *Luxembourg Digital Skill Bridge* (launched in the pilot phase in 2018), companies and their employees have been supported to anticipate and adapt to content changes occurring in work places as a result of digital technology adaptations (e.g. banking and insurance, logistics sectors) by supporting reconversion and improvement activities.

With regards to legislative barriers, Spain has adopted, for example, a number of regulations whereby citizens' right to communicate with public administrations by electronic means has been recognised (Law no 11/2007), and electronic services have been stipulated as representing the common channel of interaction with public administration (Law No. 39/2015 and Law No. 40/2015). Czech Republic has also developed guidelines for legislators on how to develop the legislation favourable to digitalisation, and the new national e-government strategy was developed on the basis of the ”once-only” and "digital-by-default" principles. In addition, with regard to budgetary restrictions, Spain used European funds in cases where there was an allocation for e-services, while Ireland and Portugal based their initiatives on e-services or on market research exercises, or on open events with stakeholders, with a view to gathering opinions and understanding the need/demand for specific digital services.

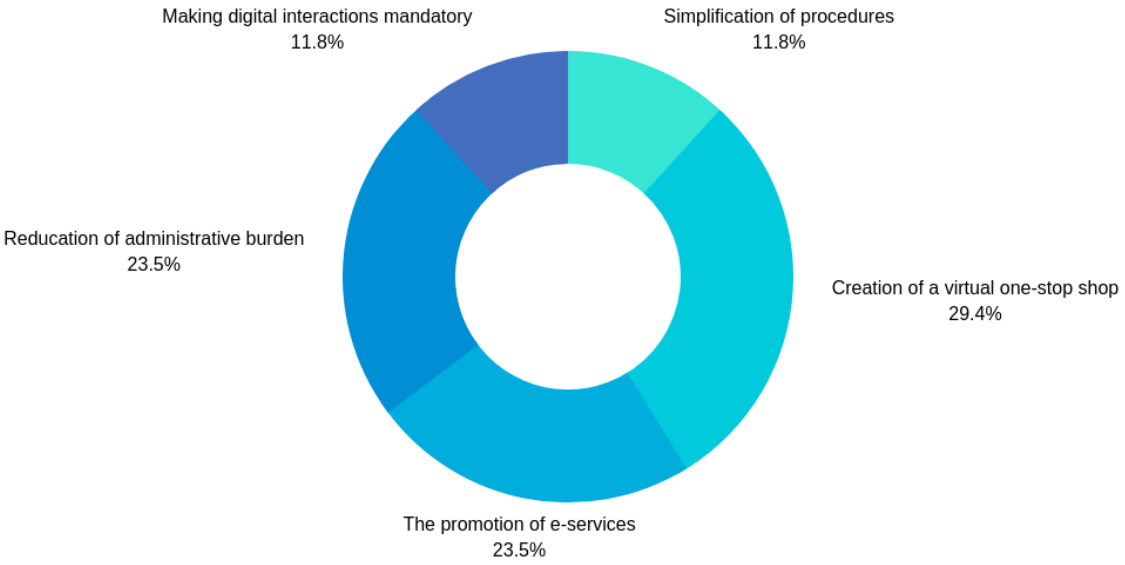
In order to overcome organisational barriers, Portugal has developed the ***Interoperability platform (iAP)***, a central service-oriented platform (with three main functions: integration platform, payment platform and SMS portal), which provides the Portuguese public administration with common tools that allow, in an agile and cost-effective way, automated electronic services. Moreover, by the resolution of the Council of Ministers 42/2015, the platform was foreseen as a preferred mean of exchanging information between departments and public administration entities. Through the ***Simplex+*** programme, Portugal has also implemented numerous initiatives in various areas, with the aim of creating new digital services and/or simplifying others. While the implementation, timing and budget of each initiative were under the responsibility of the entity responsible for the initiative (e.g. agriculture, foreign affairs, education, etc.), all initiatives benefited from the coordination of the Agency for Administrative Modernization (AMA). This coordination was practically translated into what was quoted as a network of focal points, with representatives of the various ministries involved in the regular meetings of initiatives to better coordinate the work.

In order to mitigate the issues related to the inefficient provision of electronic services generated by the fragmentation of public data centres, Italy has initiated a programme coordinated by the Digital Italy agency, aimed at streamlining the centres of public data, the consolidation of less efficient centres in selected centres and the introduction of large-scale use of cloud technologies leading to improved accessibility, use and security of electronic services, interoperability, resilience, scalability and better protection of data.

The data collected through the questionnaire survey also enabled the analysis of measures that were undertaken to increase the use of electronic public services in public administration and to streamline administrative procedures with a view to better use electronic services.

The creation of centralised platforms for the provision of e-government services to citizens, also called One stop shops, designed to create a single point of access to the services and electronic information provided by different authorities was considered the most important measure adopted to increase the use of electronic public services in public administration. In countries such as Portugal and Croatia, it was found that, in order to change how public administration functions and its relationship with citizens and businesses, to make electronic public services easier to use and to respond to the needs of entrepreneurs and citizens, the one-stop shop (the only point of contact) was the most effective measure developed. Two other relevant issues have been the promotion of e-services and large-scale cooperation between public institutions to support citizens and SMES to use electronic services (e.g. Finland and Switzerland). In addition, improving electronic documents and electronic authentication regulations, together with the development of related online platforms, have contributed to promoting information exchange and reducing administrative burdens (for example in Italy).

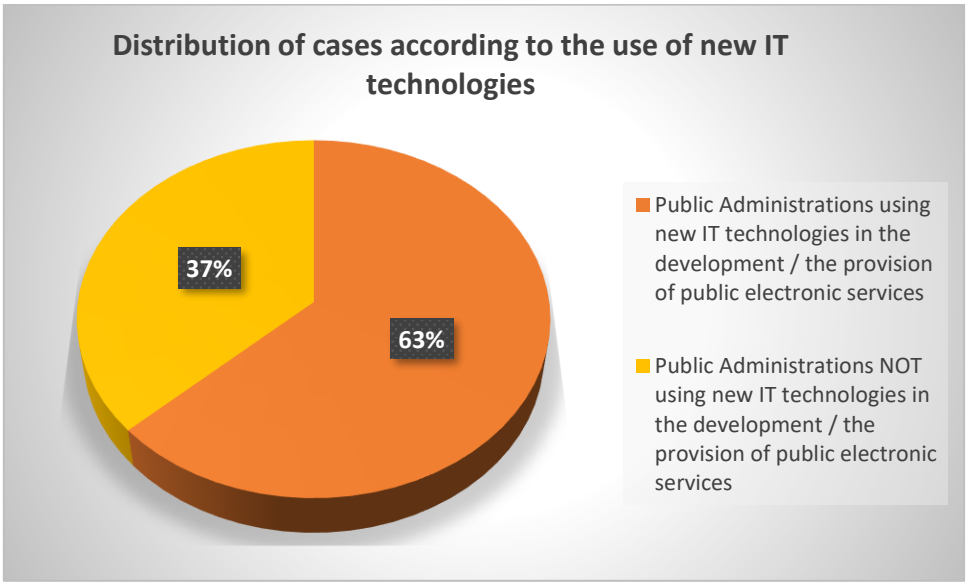
Moreover, the use of electronic public services in public administrations has been improved by reducing the physical transmission of documents and forcing companies to interact electronically with all administrations (as is already happening in some administrative organisations, such as in the case of Tax and Social Security Agency in Spain). In Czech Republic, digital interactions have become binding on G2G and G2B communication and provide financial incentives for citizens using digital communication (compared to personal requests). The decrease in costs when carrying out an electronic service is an extended measure (for example in case of Austria), as it contributes to the promotion of the usefulness and effectiveness of electronic services and electronic governance, which creates added value for the general public, businesses and authorities, and reduces the work of all those involved in the processing of official business.



Key measures with a major impact on increasing the use of electronic public services in public administration

Source: Author's interpretation of data collected through questionnaires

With regards to the use of new IT technologies in the development and provision of electronic services, 63% of respondents replied affirmative, mentioning that they use a technology based on artificial intelligence or "blockchain " technology, in most cases "blockchain " technology being the most commonly mentioned solution as emerging technology implemented in the provision of electronic services.



Source: Authors' interpretation of data collected through questionnaires

Thus, in case of Malta, for example, “blockchain” technology is used for electronic certificates in the education sector, in Finland for electronic services in the field of immigration and taxation and in Austria for e-Delivery services. Italy has also undertaken measures to use blockchain technology in the provision of electronic public services, the digital Italy Agency and the Ministry of Industry and Economic development, drafting legislative acts and directories lines on the use of blockchain technology and artificial intelligence in public administrations, while the Ministry of Education, Universities and Research implements a system for the recognition of diplomas by using Blockchain technology. Mechanical learning is used to optimize channels in Slovenia and for healthcare in Finland. Over 40% of the answers indicated that where these technologies have not yet been applied, governments are extremely interested in future use of new IT technologies in the development and delivery of electronic public services. Estonia, for example, will launch a cross-sectoral project to analyse and prepare the implementation of artificial intelligence (so-called *Kratts* or fully autonomous information systems), as well as the development of a test environment for it in Estonia. In this respect, a group of experts will be created to develop an artificial intelligence strategy for Estonia and to prepare a draft law allowing the use of kratts in all areas of life and to ensure the clarity of the judicial area, ss well as the necessary supervision. Spain also takes steps to develop an action plan for artificial Intelligence, aligned with the EU's coordinated artificial intelligence plan.

Distribution of positive answers to the use of new IT technologies

Positive responses

Source: Author's interpretation of data collected through questionnaires

Similarly to the identification of different solutions to the problems regarding the provision of electronic services, all the countries represented in the previous figure have planned a diverse set of future measures to be implemented to further develop their offer of electronic services. In this respect, future approaches vary from more efficient use of data by final recipients (in the Netherlands, for example, the objective being to improve access and management options for citizens and businesses with regard to personal data), to implementing the solutions that will ensure the transposition of European regulations at national level (the cases of Greece and Luxembourg, focusing on the implementation of Regulation 910/2014/EU, respectively the Regulation 1724/2018/EU, through the application of eIDAS (Greece) and the Single Digital Gateway (Greece and Luxembourg)), as well as to the materialization of digitisation laboratories allowing for quick and easy digitisation of procedures and administrative services (the case of Germany). This diversity adopted in the proposed future measures demonstrates once again, not only a thorough understanding of existing needs, but also a strong commitment to increasing performance in the provision of public services.

Examples of good practices in the use of electronic services

The Digital Post Initiative: A Strategic Option to Support Digital Communication between the Public Administration, Citizens and the Business Environment of Denmark

In order to improve communication between public authorities and citizens, Denmark's decision-makers have embarked on an ample process of informatization of the administration-citizens relationship. In this context, electronic mail was implemented as a single digital information point, which can be used by every registered citizen. The result was the development of the so-called "state-of-the-art digital mail" (NgDP).

Submitted under the responsibility of the Danish Digitization Agency, Digital Post is the national electronic mailbox for messages, information, communications, etc. between government and citizens, implemented with a view to ensuring the transition to the digital exchange of information (a mandatory measure for all public entities). Access to the system is conditional on the minimum age of 15 years and the holding of a unique registration number. Citizens can use the Digital Post via two access points, namely borger.dk or e-Boks.dk.

The communication and digital exchange of information through this electronic communication channel between the state and citizens covers a wide range of information, areas and facilities such as health services, social assistance, support for national education, student grants, issues on the housing situation, the relationship with guardianship and child protection, letters from the Danish Tax and Customs Administration (SKAT), etc.

The context of electronic services development

The Digital Strategy 2016-2020 is the document that sets out the route to be followed by the Danish authorities to digitalize the public sector and ensure electronic interactivity between it, the citizens and the business world. The strategy aims to build the foundation for the development of a secure and secure digital administration.

In line with the Danish Public Digital Post Act, which regulates the implementation of the Digital Post, public authorities are recommended to use electronic communication channels rather than to send letters / information on paper in both situations the status and effect of communication being recognized as equal.

In turn, citizens are required to access administrative services electronically and request digital information from public administration authorities, with a wide range of electronic services and the possibility of receiving letters, notices, information and messages from public authorities. Some of the most recently introduced initiatives in the field of digitization of the administration relationship with the stakeholders are the mandatory electronic mail service and on-line service for citizens and the business environment. In Denmark, any email sent to the public administration has the same legal

effect as a letter / request / complaint / petition sent by post: it is non-reputable and involves personal liability.

Digital Post offers the authorities the possibility to send messages, letters, digital documents, information, subpoena, etc. to all registered users (citizens and entrepreneurs). At present, approximately 4.3 million Danish citizens and over 680,000 business organizations use the Digital Post and approximately 400 public administration authorities communicate with stakeholders through this digital facility. The volume of messaging between Digital Post users has increased significantly over the past few years, from 48 million messages in 2014 to 86 million in 2015. Until September 1, 2016, when the Danish authorities have embarked on a broad process of expanding facilities of the Digital Post solution for its users, over 71.5 million messages had been reported in the system.

Description of the implementation mode

The Danish Digitization Agency is the authority responsible for implementing government initiatives on the digitalization of services provided by the government, set up in 2011 and supervised by the Ministry of Finance. In the context of implementing the Digital Post initiative, the Agency has provided hardware and software technical support for optimal operationalization of digital messaging / digital information between government and citizens.

The Agency conducted a public consultation campaign between September and October 2016. All stakeholders were invited to participate in defining the new features / requirements / facilities of the new generation of Digital Post in order to ensure relevance and appropriateness of the initiatives that aimed to change/update digital relationship between the administration and citizens. The objective of this phase was to provide stakeholders with the opportunity to provide valuable contributions concerning the design and development of the new facilities of the Digital Post.

As a result, perspectives such as user experience and satisfaction (from the citizens and the business environment), IT architecture, timing of the operationalization of the new facilities, necessary public procurement, etc. were discussed. Special attention was given to the perspective of organizations representing people with disabilities, for example, to identify and substantiate specific needs for adjusting and facilitating the access of these people to the new digital solutions to be developed.

In addition, for the information/consultation of young people, a special campaign was carried out through social networks. Despite the recognized digital competencies of this segment of the population, the Danish authorities considered such a campaign to be necessary to ensure that young people have sufficient information on the authorities' digitalization initiatives. In this respect, young people were encouraged to share new ideas for improving the electronic services provided by the public administration.

The prerequisite for the development of a digital public sector in Denmark was the existence of a robust and carefully dimensioned IT&C infrastructure with proven and reliable technical solutions. To streamline communication and exchange of information between the public sector, business and citizens, the Danish Agency for Digitization supports a wide variety of coherent/integrated digital tools and solutions, from the implementation of electronic signatures to website design specific for citizens.

User access to Digital Post is based on digital signature (NemID). With NemID, one authentication is made for public websites, online banking, and many other websites and e-services provided by the administration. In addition to the personal numeric code (CPR Number, the equivalent of CNP in Romania), electronic signature users are assigned a unique identifier that is used as a username to access the Digital Post.

Results, benefits and impact

One of the major benefits of the Digital Post system was the reduction of the waiting time spent by the citizen at the counter to solve various problems. Inadequate/incomplete inefficient information on the services provided by the administration has been prevented. Among the many benefits of digital communication with the public sector are: (1) the confidentiality and security of electronically transmitted information, as the Digital Post system is accessed through the NemID registration number and personal user code; (2) accessibility, as the service can be accessed from any computer with Internet access; (3) the speed and efficiency of electronic communication for both parties involved in the communication process, the public sector on the one hand, and citizens or the business community on the other.

The investment in the Digital Post system was partially recovered by lowering material expenses (paper) for government and postal/courier services. In addition, when social assistance/health services/home care services will be fully operational within the Digital Post, scheduled home visits will be better managed, and warnings about cancellation of scheduling will be sent via digital mail and read immediately, thus eliminating unnecessary displacements.

Lessons Learned

Digital Post users' feedback shows that the Danish authorities initiative has been a good example of how to inform/encourage rapid and massive digitalization of public services to the population. The citizens appreciated the concerted efforts of the Danish authorities to prepare the implementation of the Digital Post through a series of information, education and support campaigns.

However, information campaigns on governmental digitization should specifically target those categories of citizens who are not normally geo-digitally oriented and who need more information / advice on the use of electronic services.

Designed by the Danish authorities as the country's most ambitious digital communications initiative, Digital Post implementation has been encouraged at municipal level by about 7,000 "digital ambassadors". Each stage of implementation was accompanied by a massive information campaign addressed to companies, pension houses, shopping centres, social centres, primary and secondary schools and various project stakeholders. The Danish Digitization Agency has paid special attention to the special needs of elderly people, immigrants, people with disabilities and homeless people, ensuring that they have access to digital services and are aware of the nature and implications of the transition from material to provide services to their digitization.

The Agency believes that the Digital Post implementation is a success, at least from two points of view: (1) high citizens' registration rate: one month before the digital post operational deadline, it addresses 89% of all Danish citizens over 15 years as users, well above the 80% target; (2) the cost savings of

switching to e-communication between administration and citizens, within the administrative system and between public administration and business: preliminary estimates by the Agency indicate savings of over EUR 100 million per year as a result the digitization of communication to/from the Danish public administration.

The e-Citizens Platform: a unique point of access for Croatian citizens to quality electronic services

e-Citizens is an integrated platform with the aim to consolidate Croatian citizens' access to eGovernment services. The platform was developed under a project launched by the Croatian government to modernize, simplify and intensify communication between citizens and the public administration based on the guiding principle of providing better services to citizens and transparency of the public sector in the provision of public services.

The context of electronic services development

The project was implemented in line with the European Framework for Interoperability of Electronic Services and in line with the National IT&C Infrastructure Law published in the Croatian The Official Journal no. 92/2014. The law defines the e-Citizens platform as the only contact point for citizens and specifies that all electronic services provided by public sector bodies should be integrated/developed into this platform.

The main reason for initiating the e-Citizens project was to change the paradigm of communication between the state and the citizen, knowing that the two parties met exclusively at the offices of the administration. The Croatian state did not have a single point of contact on the Internet to provide efficient services. Unlike the government, the banking financial institutions offered a full range of Internet services through e-banking and mobile banking systems.

Bank customers were more satisfied, and banks were saving resources throughout the process - from bureaucracy to working hours. The conclusion was that if a bank can process hundreds of millions of Kune (1 Croatian Crown equivalent to EUR 0.13) via the Internet every day, then the IT&C infrastructure of central and local government should be able to exchange data from/between registers to provide efficient and quality electronic services to citizens.

The National IT&C Infrastructure Law was adopted to regulate the interconnection of the IT systems of various public sector bodies. The logic was to oblige state bodies to interconnect and exchange data among themselves, managing databases in the back-office, because citizens do not need to know which institution is responsible for their public service. Thus, the OIB system (personal identifikacijski broj - unique access code (number)) was created as a central location for the exchange of information between the databases of all state institutions. This was the prerequisite for initiating the e-Citizens project.

Description of the implementation mode

The e-Citizens system has been implemented through three essential interoperable electronic components: (1) the central government portal, which is the public part of the system, (2) the electronic mailbox for the user (custom email), and (3) National User Identification and Authentication. The components of the e-Citizen system facilitate secure communication with the public sector in the on-line environment, requiring the citizen / user to receive direct access to public administration services and receive personalized messages from various public organizations. The

personal user mailbox is available as an application for Android smartphones, iPhone / iPad and Windows Phone.

By email, a user on the platform can receive up to 37 different types of messages from public sector bodies, such as reminders about the validity of identity documents (personal identity card, passport, management), balance of payments for additional health insurance, information on the verification / updating of personal data in state registers, or, for example, information on court hearings, etc.

The electronic services available through the personal mailbox include facilities such as: requesting electronic extracts from the birth register, marriage, etc. (documents that have electronic seal); verification of the registration in the electoral register in order to exercise the right to vote; the voting lists of the chosen polling stations (active only during electoral periods); requesting electronic extracts from the permanent and temporary residence register; requesting electronic extracts from the car ownership register; communication of grades obtained by the child at school; checking the chosen family doctor, dentist and gynaecologist; ordering a European Health Insurance Card; the general presentation of medical prescriptions for the last 6 months, including their cost; vaccination of pet animals; requesting electronic brochures on available jobs; communicating the amount of rights that can be retired; registering as a potential employee; checking the amount of contributions paid for the second pillar of pension insurance and obtaining the annual certificate from the pension fund; checking the card associated with the user's tax account; requesting income, income tax payments and the amount of compulsory insurance, etc.

In order to be able to access the electronic mailbox, the citizen/user requests the ePass certification based on the username and password, or can download the mToken application, a CARNet application for smart phones. The credentials that can be used for immediate access to the platform and are recognized by the e-Citizen system are: smart card from the Croatian Health Insurance Institute, a username and password in the AAI@EDU system (in the competence of the computing center of universities for student access) and mToken used for Internet banking at Croatian Post. The Croatian Ministry of the Interior also issues electronic identity cards (mandatory for any newly issued ID card starting with June 2015), which can be used to access the e-Citizens platform. Integrating with one of the largest banks in Croatia to integrate the platform's interoperability, allowing customers using the Internet banking system to access their electronic services for their government without the need for a new platform entry.

The complete documentation for integrating electronic services with the user mailbox and the National Identification and Authentication System is published on the official website of the Croatian government, www.gov.hr. This documentation is the basis for the development of new electronic services by public institutions.

The project was implemented with financial support from the Inter-ministerial Committee for the implementation of the IT&C system in the Public Sector and the State Secretary responsible for the e-Croatia Directorate, a structure within the Ministry of Public Administration. Three people within the directorate formed the project management team while another 18 people from the APIS-IT owned by the Zagreb City Hall together with 15 Croatian Tax Administration employees ensured the implementation team. A total of 16 public institutions from different fields of activity were co-opted /participated in the development of electronic e-mail and e-mail models (subject, content, personalization according to the user's request, etc.) for the e-Citizen e-mail user box.

Results, benefits and impact

Most of the electronic systems and databases in Croatia that are at the disposal of the various institutions in central administration were designed and operationalized by applying the so-called "silo principle". Therefore, prior to the development of the e-Citizens Integrated Platform, the database was not able to be consulted only by the institution that manages it, limiting the provision of e-services efficiently and efficiently. The OIB system has been designed and implemented as a system that integrates data for all individuals and businesses (adding a personal identification number) but operates as a closed system administered by the Ministry of Finance within the Croatian Tax Administration. There is no unified data sharing system between the core registers and no data sharing policy between the ministries of different ministries, so data exchange was an exception rather than a rule. Prior to the implementation of the e-Citizens project, there is no standardized framework at Croatian public administration level to provide citizens with quality electronic services.

Croatian decision-makers have understood that electronic services support state modernization but also help reduce costs. For example, a 50-gram postal item, in which the state sends daily answers, decisions, notices, requests for additional documentation, etc., costs 11.40 Kune (about 1.5 EUR). The state spent approximately 180 million Kune annually (approximately EUR 23.7 million) on postal delivery services, as the majority could be delivered to an electronic mailbox. Another example points out that for 43,000 new-born children in Croatia each year, parents spent about 158,000 hours and paid around. 4.14 million Kune (approximately EUR 500,000) for various fees for children's registration documents, and at the same time paid 950,000 Kune (approximately EUR 125,000) for parking in Zagreb on these trips.

The e-Citizens project is undoubtedly an important step in modernizing Croatian public administration. A direct benefit of implementing this system and the associated platform is the tremendous acceleration of all administrative procedures and processes in managing documents for the state and for users, which increases the system users' satisfaction.

Currently electronic services that users can access by using the e-Citizens platform are free, but a legislative initiative aims to regulate the payment of such services by users. The project through which the e-Citizens system has been developed and implemented has been funded from the state budget, so the return of investment takes the form of reduced time and costs that users enjoy when requesting electronic services to the Croatian state.

Lessons Learned

The e-Citizens project reflects from a design and implementation point of view as an example of good practice concerning awareness of the indisputable advantages of interoperability of electronic databases in terms of facilitating effective and efficient electronic service delivery. Thus, the Croatian state has facilitated its citizens access to quality administrative services and has allowed the interconnection of various associated services and systems. It was thanks to this result that the further the e-services for citizens of greater complexity (e.g. e-Savjetovanja - e-Consultation, which gives citizens the opportunity to directly comment on draft laws, regulations, strategic documents etc., all comments being available in real time to the general public) were developed. The purpose of the project was to gradually include all the other electronic services that are currently offered by public sector bodies through their websites. In this way, public sector institutions are encouraged to continuously develop top quality electronic services.

InfoCamere Network: The contribution of open source IT applications to streamlining the relationship of the Italian Chamber of Commerce with the stakeholders

InfoCamere is an electronic platform of Italy's Chambers of Commerce Network, technological structure with a role to support them in the integrated management of databases and the provision of electronic services. InfoCamere provides a high-speed and high cyber security communications network, which interconnects the information centers and databases of the administrative system of the Chamber. With the latest on-line IT solutions, the platform ensures day-to-day business activity, facilitating access to information and electronic services dedicated to all those involved in business in Italy: businesses, public authorities, business associations, small entrepreneurs, the general public and any person operating economic data.

The context of electronic services development

InfoCamere was set up to maintain a high level of evolution and optimization of IT services provided to Italian chambers of commerce. In essence, the change consisted of migration from hardware and software platforms to an open source environment, to be developed in conjunction with external factors such as national and European laws. The developed platform therefore complies with national and European regulations on electronic procurement and contributes to the digitization of Italian public administrations.

The platform has developed in a context characterized by the maturity of public institutions and authorities in terms of stakeholders' access to public information, with decision-makers in Italy constantly concerned with computerized administration and the implementation of non-core programs for domains activity suitable for application of computer systems and networks / automation etc. InfoCamere is a representative example of good practice for Italy because it is proof of the close relationship that exists in the administrative system between the degree of adoption of open source IT solutions and the level / complexity of national regulations in the field of electronic services.

The main actors involved in the InfoCamere development initiative were the internal structures of the Chambers of Commerce network: the Steering Committee, the Chiefs of Chambers, other senior management, governance structures, IT support, administrative services within the Chamber (procurement, regulatory, etc.).

Description of the implementation mode

The InfoCamere Initiative was implemented in two phases, each with distinct objectives. In the first phase an evaluation of the available software products/apps in the InfoCamere data center was carried out in order to identify potential technical solutions for process optimization and to determine the best options regarding the management and evolution of the used software portfolio.

The Global Preliminary Assessment was based on national and European regulations in terms of procurement of goods and services, openness to open-sourcing, IT&C market trends, and the Government's concerns about digitalization of the administration (through the new structure set up, the Agency Italian for Digitalization-AgID). Thus, a comparative analysis of 40 software products (40%

of which were already open source software), for which the structural, technical and regulatory constraints were identified.

The assessment of the potential of the software used took into account three stages, taking into account several key factors such as IT&C market trends, license costs, implementation effort, return on investment in such software, organizational impact, technological risks and contribution to growth quality of the services provided. At the end of the evaluation of the functionalities / software components, a series of open-source alternatives for each of the softwares used up to now in the Italian chambers of commerce network was outlined.

Four possible options were considered: (1) existing software is maintained and further developed; (2) switch to other software solutions, eg open source software, or existing software is re-used (the most preferred option); (3) existing software is partially replaced by other products, depending on the context, software functionality and versatility (acceptable option), and (4) looking for modelling/ development scenarios of other IT solutions. Therefore, in the first stage, the existing/ utilised software was evaluated both in terms of the possibility to cover as many of the specific activities and services as provided by the Chamber of Commerce, but also in terms of the functionality of the IT components, the potential for interconnectivity between them and the real capacity to generate quality in providing electronic services.

The second step was to analyze and compare each of the InfoCamere software used in each domain (cyber security, backup and data recovery, database system, etc.) with an alternate open source software. As a result, the last stage of the first phase assessed the economic sustainability of replacing each existing software with an open source one.

In the second phase of development of the InfoCamere system, a plan for the operationalization and development of the new software installed in the data center was developed for the period 2017-2019. Implicitly, at this stage, it was also intended to develop a follow-up procurement plan over the next three years to support the ITC infrastructure in further developing InfoCamere in terms of the electronic services provided.

A four-step approach has been pursued. The first step was to split the software used in the Italian Chamber of Commerce's data center in homogeneous technology areas and to identify the IT coordinates needed for the development of each area in order to define the strategic and operational factors for the evolution of the information system and the InfoCamere platform for the period 2017-2019. Therefore, the five directions / coordinates envisaged for the development of the system were: (1) IT & C strategy - considered the main development engine of the InfoCamere platform; (2) results based on the evaluation of software functionality - functional coverage of the software and open source peer identification and comparison with the functions / features / functionality of the identified / used software; (3) the relevant regulations in the field - the main national and European legislative regulations, including the decisions / recommendations from the Italian Agency for Digitalization (AgID); (4) IT & C developments - technological progress and the latest IT & C innovations; (5) experimenting with new developed functionalities - the results of tests conducted to analyze new features and functionalities and to test the innovative technologies to be developed / used within the integrated InfoCamere platform.

In the second stage, the strategic initiatives to be considered for each area were identified. After evaluating the functionality and usefulness of each software used, a decision has been made regarding the IT solutions to be replaced with alternative open source softwares. These decisions led to the need for clear decisions to be implemented, such as software license renewal, software migration to the identified open source alternatives, technical feasibility analysis, etc. In addition, based on the business strategies and technological trends identified for the Italian Chamber of Commerce, a number of IT initiatives have been spotted (in different areas such as, collaboration, access to information, processing / analyzing information, etc.), such as the additional responsibility of IT departments to investigate new technologies needed in the work of the Chamber (block-chain, Machine Learning etc.). In the next phase, these initiatives were prioritized in order to substantiate the necessity and timeliness of their implementation. Prioritization has been carried out on a three-step scale (high, medium and low priority) according to two major criteria: (i) legally binding implementation or strategic relevance, and (ii) operational need for implementation.

The fourth phase consisted in implementing / operationalizing IT departmental changes, according to a Gantt calendar, with details of each initiative to implement new softwares for the period 2017-2019. The roadmap takes into account the milestones set and highlights both the ongoing initiatives and those to be launched.

Results, benefits and impact

The InfoCamere project, related to the implementation of open source software at the data center of the Italian Chamber of Commerce, reveals a number of benefits. First of all, it should be noted that there was a clear vision, transposed into concrete initiatives and convergent measures to increase the level of "openness" of the databases, respectively the functionality of the software operated at the InfoCamere data center. There has also been a unified approach to the opportunity / need for some software programs to be replaced by open source, while detailed estimates have been made on the cost savings needed for the provision of electronic services as a result of IT changes made.

The success of the project was definitely determined by the use of a coherent action plan for implementing the changes, with responsibilities and close monitoring of the implementation process of the new IT & C solutions. Moreover, the investment in identifying technological trends in the near future has facilitated the acquisition and operationalization of the most suitable IT / e-solutions suitable for implementing the necessary changes in the field of electronic services, of course, in compliance with national procurement legislation.

Lessons learnt

Following the analysis of the InfoCamere initiative on improving electronic services by using predominantly open source softwares, it can be concluded that open source software is not a valid alternative in general, but should be analyzed in terms of functional coverage and support / maturity in relation to the results, so that IT technologies become the real IT support of the administrative processes carried out at the level of a public institutions, especially in the relationship with its stakeholders.

On the other hand, from the experience of developing the InfoCamere platform it has been shown that new open-source technologies / open source softwares must first be technically and economically

investigated to understand the potential and applicability in the business context of a public administration, and then implemented in the most efficient way to ensure the efficient operation of the electronic services provided to the stakeholders.

Assessment of the progress and implementation plan for IT solutions must be carried out annually. InfoCamere already has a plan for the annual update of the functionality analysis of the software used, but also update the plan for the period 2017-2019, which was based on the potential to increase the maturity level of the new technologies, but also the possibility that new needs of the Italian Chamber of Commerce could appear along.

KKSzB platform: relevance of the interoperability of databases managed by the central government in Hungary

The Hungarian central government ”service bus” (Központi Kormányzati Szolgáltatás Busz - KKSzB) is an integrated platform that ensures the interoperability between national databases / registers and various IT systems specific to public administration in different areas of activity. The platform aims to ensure the link between the public sector databases for the provision of standardized electronic services. This was possible through the unification of the communication methods.

Context for developing electronic services

The implementation of e-Governance is a work in progress for many years in Hungary, one of the main objectives being to simplify and unify administrative procedures / processes and to encourage collaboration between authorities that deal with the challenges of e-administration.

The KKSzB platform makes it possible to connect information systems with different technological, operational and integration levels, as well as to reduce errors in redundant data storage and ensure the integrity of data resulting from this practice. KKSzB ensures electronic communication, interoperability and secure data exchange between Hungarian public administrative authorities.

In the case of eGovernment implementation based on the interoperability of the public administration authorities, a number of premises were considered: (1) all data of citizens and enterprises stored by the public administration in the national registries and databases can be automatically transferred from the primary source through a simple and fast data transfer; (2) public authorities using KKSzB can access different services by using a standardized IT solution under the same conditions; (3) Due to the cooperation between the public administration IT systems, based on a standardized solution, there are real chances that the transparency, flexibility and quality of cooperation will increase.

Electronic service providers, enrolled on the platform, benefit from the same advantages by joining KKSzB as the entire portfolio of electronic services can be accessed by other platform users, citizens or entrepreneurs. This does not require additional action from the electronic service provider - software development, authentification or connectivity problems, because all of these are already available to platform users. Also, service providers connected to KKSzB have the duty to allocate the necessary and sufficient resources to meet the requests from the citizens or the business environment.

The national registries and databases, which formed the basis for the development of the platform for the interoperability of public institutions in Hungary, are regulated by Law no. CCXXII / 2015 on general

rules for electronic administration and Government Decree no. 451/2016 on detailed rules for the implementation of electronic administration.

Description of the implementation method

Data registries and national databases have represented the starting point for the development of the platform and represents the core for developing more electronic services through its communication system. The new public platform is an integrated one, capable of aggregating all databases and registries of public interest information in accordance with the latest European regulations in the field. At different levels, the central public administration databases are the official sources of information consulted by citizens, businesses and public institutions.

The platform became operational with a pilot period on March 31, 2017 by publishing two eGovernment services already existing on KKSzB: the registry of private entrepreneurs and the registry of parking permits, for which there was an unexpected success. Thus, ten other national registries and databases owned by the Ministry of Interior were connected to the KKSzB platform in October 2017 and were initially available for testing. In December 2017, after the end of the testing period, the new features of the platform were launched. The government has been following the launch of the platform since January 2018, with the possibility of ensuring the interoperability of a total of 27 major national database registries, to be fully connected to the platform during 2018 and to enable the transfer of electronic information and data exchange to citizens and the business environment. Most of them were connected and made available on the KKSzB platform in 2018, in line with the legal framework governing the implementation of e-Governance in Hungary.

The platform dynamic, as new functionalities, new services, new registries and databases are constantly added. In general, they cover different types of registries: content management solutions (from storage to transfer services), e-Identification / e-Signature or e-Payment, etc. Each electronic service is made available to users with the necessary documentation, legal framework, purpose and objectives of the service, user guide and technical specifications.

KKSzB is available online from 1st of January 2018, creating the possibility to replace today's "spiderweb-like" architecture in the field of communication between national registries / databases and specific sectoral systems, and the possibility of establishing new connections in a much easier way. During the year 2018, most of the public administration stakeholders were registered on the KKSzB platform, depending on their own interests and the complexity of the projects developed in the field of electronic administration.

The coordination of the platform is under the responsibility of the Ministry of Interior, which has created a special agency for this purpose. IdomSoft Ltd. is a 100% state-owned company operating within the Ministry of Interior and acting as a developer and service provider for the KKSzB platform. The company provides high-level technical support and expertise to all platform users in administrative and / or technical matters. Other relevant ministries such as the Ministry of Economy, the Ministry of Justice, etc. are also expected to be invited to collaborate, as their own registries and databases are integrated into the government platform.

Although KKSzB is an electronic platform developed at central government level, it was not only available to government institutions, while other organizations, institutions and public administration

authorities and private sector were able to benefit from the electronic services available through the platform. The next step was to extend access permits for other users, such as banks, telecommunications companies, public utilities, etc., to connect to KKSzB and ensure the reliable operation of their services by using some unified data transfer solutions. Individual citizens remain the most important end-users of the platform, thus, a constant development is focused on a wide range of e-services dedicated to them.

Results, benefits and impacts

The newly created and integrated information and data solutions provided by the KKSzB platform regarding the national base registries, along with the government's guarantee of these electronic facilities for the national administration system, result in the development of an e-government more convenient and more modern in Hungary. This innovation essentially aims at reducing the administrative burdens of citizens.

Implementation of the KKSzB platform has contributed to administrative simplification, access to data / information of public interest being guaranteed to citizens and businesses and achieved in a modern and efficient way. More electronic services are available to citizens and the business environment through the platform. The platform has been designed to focus on its' end users and to ensure the uniqueness of user registration, while data is downloaded directly from national databases.

The KKSzB platform ensures the interoperability of databases managed by various public sector entities so that authorities have electronic access to all the data requested. The citizen or entrepreneur must not provide or prove the existence of certain information because it is already stored in the registers / databases to which all public institutions have access through the KKSzB platform.

Furthermore, from a practical point of view it is another main benefit that the KKSZB itself manages the identification and access permissions. Therefore, the development of identification and access permission solutions on an application level will not be needed anymore neither on the clients' (citizens or entrepreneurs) nor on the service providers' (public administrations) side. As connecting to the KKSzB Gateway is a one-time action, the citizen or business will have access to all services they are entitled to use without implementing any further solution for identification or establishing any new system connections.

Lessons learnt

The platform is functional and ensures the interoperability of centrally managed registers and databases, thanks to the collaboration between the various ministries involved and the Ministry of Internal Affairs, as well as IdomSoft Ltd., the company responsible for the operability of the platform, from a technical and administrative perspective; a well-defined and structured governance is undoubtedly the key to KKSzB's success.

Additional platform details and facilities are available on a government web portal and can be accessed after registration by the public administration bodies. This website is not accessible to the public, but civil servants in the public administration authorities can register from their workplace and then access all the information needed to connect to the platform and use the services / facilities

offered. As this portal is already widespread / known among public institutions, officials can benefit from internal courses and become familiar with the new procedures once the registries/ databases to which they are working on are connected to the network.

The KKSzB platform is not only the most suitable electronic mean for requesting information outside the administrative system (by the citizen or entrepreneur), but becomes a channel for communication / dissemination / sharing of information within the administrative system between the different entities.

Aplicația MAREVA 2: electronic facilities for the economic evaluation of IT projects implemented in the French public administration

MAREVA 2 is the second version of the Method of Value Analysis and Growth (Méthode d'analyze et de Remontée de la Valeur) which serves to analyze the opportunity and added value of IT & C projects. This follows the MAREVA 1 approach, designed in 2007, except for the risk analysis approach, but with some additional features. MAREVA 2 allows the prognosis of project results in terms of economic profitability, implementation strategy and value created through the project. Thus, this project analysis platform provides decision makers in public administration with an important tool to authorize the launch of an IT project and allows for accurate monitoring and efficient management of the necessary decisions at every step during the implementation of the project.

Context of development for electronic services

The Inter-ministerial Directorate of Information and Communication Systems in France (DINSIC) is a special department of the central government under the authority of the prime minister, with specific responsibilities to coordinate administrations' actions in relation to IT & C systems. DINSIC was established on September 21st, 2015 by merging the former inter-ministerial information and communication systems (DISIC) and Etalab, which were responsible until then for developing and implementing public policies on open data management.

Among other tasks, DINSIC is reviewing the MAREVA procedures that were designed and applied for the first time in 2007. Its purpose was to evaluate the opportunity to select and implement a project based on four criteria: (1) project profitability, (2) project need / utility, (3) expected internal benefits and (4) expected external benefits.

In order to improve managerial performance for IT projects implemented in the public sector, the method was modified in 2014, resulting in the appearance of MAREVA 2, currently widely used in the central administration, within the DINSIC, by ministries and other institutions and public authorities in the France. Thus, MAREVA 2 has become the inter-ministerial method used to analyse the value of government-funded IT projects and to assist strategic decision making about launching large-scale IT projects and then to determine their value over time.

In recent years, the performance of public IT & C projects has been assessed using MAREVA. On the basis of these assessments and estimates generated by MAREVA, especially in the case of expensive projects and initiatives of vital importance for the IT systems of the French public administration, the state budget law was based, elaborated and validated.

In addition, Article 3 of Decree No. 2014-879 of 1st of August 2014, on the national information and communication system, states that "public projects must meet the provisions set in the decree by the prime minister and the minister responsible for the state budget, especially in terms of estimated costs, and only then are submitted for approval to the Director of the DINSIC Directorate. " This regulatory compliance now implies that public IT & C project proposals will benefit from a value analysis using the MAREVA 2 method.

Description of the implementation method

MAREVA 2 targets any government in France that wants to better manage IT projects, including initiatives for a change, such as public sector modernization or public service digitization. MAREVA 2 is first a method of analysis and then a decision-making and communication tool for key actors involved in large-scale government projects that can be used by both decision-makers, project leaders and IT & C departments of any public institution. The value analysis method allows the assessment of an IT project in terms of two main criteria: (1) the implementation strategy - the value analysis of the project envisages the quantitative and qualitative evaluation of the business, organizational and / or functional objectives; (2) cost effectiveness - the value analysis of the project is based on the assessment of the economic efficiency of the benefits and costs of the project. MAREVA 2 applies throughout the life cycle of the project and serves as a support tool in project decision-making in different situations:

1. evaluation of project proposals and their prioritization in the portfolio;

2. comparing different scenarios of project implementation and choosing the most appropriate / effective way of implementation;

3. evaluating and reviewing performance in project implementation and how it generates value;

4. drawing up conclusions following the ex-post evaluation of a finalised project.

Decision-makers of the French administration are able to compare and track the added value created by different public projects and prioritize them according to their contribution in relation to the strategic directions defined at governmental level and the objectives assumed by the administrative structures they manage. The decision to continue or stop the implementation of a project (especially for projects in difficulty or whose results differ too much from the initial estimated benefits) is adopted on the basis of MAREVA 2 analyses.

The MAREVA 2 application (which targets the project's economic profitability, implementation strategy and added value) is designed to be applicable to any type of IT project carried out by public authorities. Project value evaluation templates are available on the official website of the respective ministry, in the form of a Microsoft Excel (or equivalent) package with three files that allow the project to be evaluated on the basis of economic efficiency, implementation strategy and added value. These files are designed to facilitate easy access and usage by the officials responsible for applying MAREVA 2, the content being as exhaustive as possible. Ministries provide multi-level training to develop the skills and abilities of officials responsible for applying the method, on how to handle procedures and how to correctly apply the rules in existing projects.

Results, benefits and impact

The implementation of MAREVA has resulted in the existence of relevant successful projects in France, particularly in terms of evaluation and follow-up processes. The main feature of first version of MAREVA method was the way in which the application generated a comprehensible report to engage project team members in carrying out activities, meeting objectives and achieving project results, while allowing for better project management. In the meantime, applying MAREVA became mandatory for IT projects managed by French ministries, and new approaches allow the assessment of different aspects of the projects. The method is already applied before launching / initiating / opening public projects, in order to minimize the risk of unnecessary activities / initiatives / projects, thus optimizing the efficiency of the use of the public budget.

All aspects of the MAREVA initial approach are part of the second version of the application, MAREVA 2. The methodology underlying the electronic application allows to track the value of a project at each stage of its life cycle: before implementation - to contribute to the process of decision making during project management - to justify resources, to choose between various implementation alternatives, develop a corrective action plan and post-monitoring - to capitalize on the experience you have gained.

In cases where the opportunity of the project has been demonstrated, MAREVA 2 proves useful because it allows the value of the project to be compared in the various development scenarios, in order to fundamentally choose the most valuable variant. Typically, the project pursues a general objective (e.g. administrative simplification), which needs to be detailed in sub-objectives (specific objectives) to verify its implementation over time. The results provided by the e-application on the strategic value of the project allow a better targeting of the sub-objectives (eg response to a regulatory need).

An important aspect of MAREVA is that it does not focus exclusively on economic profitability. It may even indicate that some projects may seem unprofitable, but are totally justified due to their added value, both for the public sector and for citizens, and their real needs.

All the major public projects in the field of IT & C carried out by the French administration (61 projects with a total value of more than EUR 2.5 billion invested in recent years) are subject to the evaluation of the added value using the MAREVA 2 application. Thus, about 25% of the total annual IT investments of France, amounting for approximately EUR 200 million, is subject to evaluation under MAREVA 2.

Lessons learnt

MAREVA 2 was conceived through the effective inter-ministerial collaboration at central government level in France. This has represented the premise that the method of evaluating the added value of public projects and its corresponding electronic application reflects and responds to the needs of end-users. Also, the development of these tools has enabled the involvement / consultation of the majority of relevant stakeholders (businesspeople, developers, IT firms, etc.), which has led to a high level of common, shared and transversal understanding of the challenges, and the purpose of the project. Clearly, the participatory approach has led to the optimization of the results obtained by this method.

To be effectively spread and used, MAREVA 2 is characterized by the existence of a package with three defining elements: the actual method, the set of electronic tools necessary for the applying the method and the support organism. This organism has expertise on the use of the method by regularly providing training programs to raise awareness of the utility of the method, to further develop the skills needed to optimally use it. The approximately 500 people trained so far are both IT practitioners and officials working for the business environment within the ministries (acting as super-users and forming the first level of support / advice in using MAREVA 2) as well as members of the "user club" (which is managed by DINSIC and acts as the second level of support).

Conclusions

Based on both the questionnaire applied among the representatives of the administrations of EU Member States and the debates within the two EUPAN events that covered the subject of electronic services, it became clear that currently existing ITC solutions are not barriers or limitations for further developing the electronic public services. In most cases, those barriers are:

- Of organizational nature - the administrations involved in providing these services have insufficiently prepared human resources and limited financial resources, managing the needs of isolated citizens, based on their own projects, which are not integrated with the initiatives of other public institutions;
- Of legislative nature - the transposition of electronic services requires multiple modifications and simplifications of normative acts and administrative procedures that underpin these services, a process that requires a unitary approach;
- Of social nature - the general low degree of digital literacy among potential users, their reticence towards a depersonalized interaction with public administrations and the extension of electronic delivery of public services, lack of confidence in the way personal data are handled by authorities and the low level of awareness on the existence of the option to electronically access public services, represent the most important barriers to the widespread use of these platforms;
- Of a technical nature – the already developed platforms are not user friendly (intuitive) and do not display all the information searched by users in a unitary manner, and in some cases they do not use an integrated authorization process (based on a single authentication system).

Generally, for most of these barriers, EU Member States are considering a number of measures to tackle these difficulties, ranging from widespread training of digital competences and support to the electronic access of public services to legislative changes (including better transposition of European directives into national laws, implementation of the "digital first" principle, etc.), to exploring how to integrate new technologies (Artificial Intelligence, blockchain) and ensuring more efficient user data management. The variety of solutions under consideration demonstrates not only a good understanding of citizens' needs, but also a commitment to increase performance in delivering public services.

In terms of good practices, the study aimed at presenting ITC solutions that addressed different issues in an efficient way.

Thus, in the case of Denmark, based on the need to streamline and secure communication between public authorities and citizens, the Digital Mail Initiative (NgDP) has been developed to facilitate the exchange of information on a wide range of public services (health services, social assistance, support for national education, subsidies for students, housing issues, relationship with guardianship and child protection, letters from the Danish Tax and Customs Administration (SKAT), etc.). Apart from the immediate results, which mainly focused on reducing the response time spent by the citizen in front of the counter, the extensive information campaigns among citizens, regarding the availability of the service, were at the same time a way of building trust in accessing public electronic services.

Addressing the need for increased interoperability of e-services offered, the implementation of the e-Citizens project in Croatia has facilitated the process of informing and communication to the citizens, on a wide range of public services. At the same time, this solution has also contributed to the huge acceleration of all administrative procedures used for managing the documents and has automatically increasing citizens' satisfaction in relation to the performance of public administration. Similarly, the development of the KKSzB platform in Hungary, based on which it was possible to connect computer systems with different technological, operational and integration levels from different public institutions in order to facilitate the access of citizens to various public services, also led to a more efficient delivery of public services and at the same time to an increase in the beneficiaries' satisfaction.

Considering the need to interconnect the various public institutions' databases in order to improve the delivery of public services, the InfoCamere project implemented by the Italian Chamber of Commerce aimed at integrating all the data bases, to improve the efficiency of their work. At the same time, the project represented an important step in the implementation of new open source technology solutions at the level of public administration, establishing a methodology for assessing the opportunity for their implementation.

Last but not least, considering the need for an objective analysis of the opportunity of governmental digitization projects, the development of the MAREVA 2 system in France to assess the added value of large-scale ITC projects has facilitated not only the selection of the most effective scenarios but also contributed to involving the majority of relevant stakeholders in this process, helping to increase the legitimacy of the decision-making process and to optimize it.

Concluding this analysis, it can be argued that, based on the diversity and volume of solutions generally implemented by EU Member States to tackle the barriers in the digitization process of the public sector, public administration demonstrates not only a good understanding of the needs of citizens but also has a strong commitment to improving performance in delivering public services.