

Portugal

Leapfrogging Digital Transformation

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Executive Summary

This report presents the Digital Transformation Strategy (hereafter the Strategy) of the Government of Portugal, its underlying drivers, governance model, regulatory framework, critical enablers, and central initiatives. The report also provides lessons learned and recommendations for Latin American countries drawn from the Portuguese experience.

The Strategy presents two major examples of good practices:

1. **A methodological approach for defining and implementing the strategy**, which includes the institutionalization of a governance model, the empowerment of a central agency responsible for the strategy, the availability of political backing and financial resources to support implementation by government agencies; the strong focus of the strategy on administrative simplification, de-bureaucratization and de-materialization, and the definition of critical and quick-win initiatives co-created with users through civic participation conducted by a wide range of channels.
2. **A set of a comprehensive set of initiatives defined by the strategy**. The Strategy comprises different types of initiatives, those related to the provision of innovative digital services applying digital and traditional channels with simplified processes and interactions with users, those providing the horizontal foundations and key components facilitating data sharing and inter-agency interoperability, and those for building human capital in the public sector and society, as well as organizational capacities in public agencies for public innovations and service design.

Examples of key initiatives described in this document are related to: 1) **digital services** – such as the Change of Address service, Zero Licensing, Digital Medical Prescriptions; 2) **delivery channels** – such as the public services single portal ePortugal-gov.pt, the Citizen Shops, Citizen Spots and Business Spots; 3) **common technical solutions** – in particular the Citizen Card, the digital mobile key and the interoperability platform; 4) **institutional capacity-building** – such as the Council for ICT, the SIMPLEX Program, SAMA2020, LabX and the GovTech; 5) **human capacity-building** – such as AMA Academy, TicAPP, and INCoDe.2030; and 6) **sectoral digital transformation strategies** – in particular the Closer Justice Program. All of them are analyzed in Section 8 and described in more details in Appendix B.

Main **lessons learned** from Portugal's digital transformation strategy are grouped in the following areas and refer to: 1) **governance** – establishing and empowering a central coordination unit to shape and drive the digital agenda, institutionalizing an empowered governance model, and ensuring political support from the center of government and the highest political authority; 2) **strategy approach** – pursuing citizen-driven needs, promoting broad stakeholder participation, integrating suggestions from public servants to improve services and processes; 3) **implementation** – designing services for citizens based on life events, adopting new methodologies for service design, defining communication strategies, and building different types of digital capacities in the public sector and society at large; and 4) **sectoral and regional agendas** – complementing and strengthening the national strategy with sector-specific strategies, and considering the role of a supranational entity acting as a driving force for implementing specific

reforms in the region, e.g. the European Union promoting the adoption of the once-only principle, among many other initiatives.

Measures of impact are impressive and illustrate the benefits of digital transformation. For example, 40 measures implemented as part of the SIMPLEX+ 2017 Program contributed to save annually 8,142 million hours to citizens, 6.3 million hours to companies, and 560,000 hours to the public administration. The net annual savings of these initiatives represent € 170 million (about 0.08% of GDP), producing an economic impact in terms of Gross Value Added (GVA) of € 89.4 million (about 0.04% of GDP); thus, in total, the benefits produced by these 40 initiatives of the SIMPLEX+ 2017 Program account for 0.12% of GDP. For example, the return on investment for each € 1 invested in the Simple Customs Declarations solution contributed to generate € 318.80 of economic value per year; and each € 1 invested in the Simple Report to Social Services solution contributed to obtain annually € 217.07 of economic value.

The Portuguese experience brings important **lessons for Latin American countries** that include the comprehensive nature of the Portuguese strategy and the rigorous and centrally coordinated approach for developing and implementing the strategy; the advantages of having an institutionalized governance model defining the strategy, an empowered central agency responsible for coordinating its implementation, and the relevance of cementing the foundational technical solutions. Strategic initiatives particularly relevant for the region include the SIMPLEX Program and the Council for ICT, the ideas underpinning the Citizen Shops, and the Citizen and Business Spots, as well as innovative initiatives such as the public innovation

lab (LabX), the GovTech challenge program, TicAPP, and INCoDe.2030. Two more lessons refer to the value of mobilizing external funds to sustain strategic initiatives, and defining clear principles for government digital services, particularly in terms of inclusion, accessibility, and simplification.

This report is structured as follows: Section 1 presents details about Portugal enabling or inhibiting its digital transformation. Section 2 analyzes the main motivations for the digital transformation strategy; Section 3 summarizes its main challenges, while Section 4 presents the main components of the strategy. Section 5 analyzes the governance model, and Section 6, the legal and regulatory framework. Section 7 discusses critical enablers for the digital transformation of government services. Section 8 introduces 16 key initiatives of the strategy. Section 9 summarizes the lessons learnt, followed by an assessment of the strategy's impact in Section 10. Section 11 synthesizes lessons for Latin American countries. Finally, Appendix A enumerates main legal and regulatory instruments supporting the digital transformation in Portugal, Appendix B presents a set of 18 sections providing details of the initiatives analyzed in the report¹, and Appendix C explains how the digital transformation efforts contributed to face the challenges raised by the COVID-19 pandemics.

¹ These are the following: the Citizen Card, the change of address service, Zero Licensing, Digital Medical Prescriptions, ePortugal.pt portal, Citizen Shops and Citizen and Business Spots, the Digital Mobile Key, the Interoperability Platform of the Public Administration, the SIMPLEX Program, SAMA2020, LabX, AMA Academy, TicAPP, INCoDe.2030, the GovTech program, the Justice Portal, and the Closer Justice Program.

Acronyms

AMA	Administrative Modernization Agency Agência para a Modernização Administrativa
BI	Identity Card Bilhete de Identidade (paper-based identity card, used before the eID-based Citizen Card)
CAF	Development Bank of Latin America Banco de Desarrollo de América Latina
CEGER	Management Center for the Electronic Government Network Centro de Gestão da Rede Informática do Governo
CTIC	Council for Information and Communication Technologies in the Public Administration Conselho para as Tecnologias de Informação e Comunicação na Administração Pública
ESPAP	Government Shared Services Entity Entidade de Serviços Partilhados da Administração Pública
EU	European Union
G2B	Government to business (type of public service)
G2C	Government to citizen (type of public service)
GVA	Gross Value Added
iAP	Interoperability Platform of the Public Administration
ICT	Information and Communication Technologies
LAC	Latin America and Caribbean
OECD	Organization for Economic Cooperation and Development
PA	Public Administration
PIN	Personal Identification Number
SAMA	Support System for digital transformation of the Public Administration Sistema de apoio à transformação digital da Administração Pública
SDGs	Sustainable Development Goals
TC	Technical Committee

Foreword

The coronavirus crisis has accelerated the urgency of the digital transformation of governments around the world to meet the rising expectations of digital citizens in the provision of public services. What was important before, has become essential. The crisis has revealed the centrality of digital resilience as a critical dimension of public administration to manage and mitigate the consequences of the health emergency. Countries that have made greater progress in their digital transformation journeys have been better able to weather the storm and are better positioned for the recovery. More fundamentally, the transformation of government that digital solutions allow and enable is intended to get better government, better policies and better services.

In this context, the experience of Portugal provides many valuable lessons for digital reformers around the world and in particular in Latin America. The digital transformation operated in Portugal in the last two decades has, since the beginning, focused on making the public administration more efficient and as seamless as possible, so as to provide citizens and companies a high-level quality public service delivery. Interestingly, digital government in Portugal has always been considered an integral part of its administrative modernisation efforts, not distinct from it.

In a relatively short period of time, Portugal has risen to the top league of digitally-advanced countries, joining the select group of the *Digital Nations* in 2018. This recognition reflects its impressive progress and remarkable achievements in leveraging new technologies and data insights to make government work better for everyone. Portugal has indeed been recognized as one of the global leaders in digital government according to the United Nations and the OECD digital

government indices, having invested continuous and consistent efforts in the last 15 years.

Portugal digital transformation strategy has triggered profound transformations in the way the public administration operates and in the design of public services. Its vision is to provide better public services to citizens and businesses focusing on the digital transformation of public administrations and using digital innovations as a catalyst of public sector modernization.

This transformation has been driven by the centre of government, with clarity of vision and consistency of purpose, backed by strong political will as a state priority across governments and sustained over time. It has been supported by robust governance arrangements setting “the tone from the top” as a whole-of-government strategy, complemented by a committed central digital team and supported by strong implementation capabilities of its Administrative Modernization Agency (AMA).

A combination of efforts have been instrumental in these achievements. Governance was a major success factor in having the nation’s efforts pointing to a common objective. Portugal has invested in its digital infrastructure to build the necessary foundations for its government digital services. It has combined investments in its cross-government digital enablers – such as digital identity and the interoperability platform, with strategic initiatives focusing on quick wins to build political support for the reforms. Such strategic initiatives include the flagship program for administrative simplification, SIMPLEX, an initiative launched in 2006 that has been sustained over time. The digital strategy has also focused its efforts in critical services of health and justice, as a way to simplifying lives and creating public value.

The practices presented in this study are examples of a wider range of initiatives that could be highlighted. At both transversal and sectoral level, the Portuguese public administration has launched some pioneering solutions in the area of digital government that are inspiring examples of a citizen-driven approach. Currently, Portugal is working to increase interoperability within the public sector, applying the “once-only” principle, ensure secure authentication, and strengthen data management, with the final aim of accelerating the satisfaction with and effectiveness of public services.

These efforts have put citizens first, centered on life events and tailored to local realities. They include concrete initiatives that have improved people’s lives in tangible ways, such as the eID citizen card (civil document), zero licensing, medical e-prescription, and a single portal to access all government services. One of the distinguished features of the national public services portal e-Portugal, the platform providing the digital single point for accessing all public services launched in 2019, is that services to citizens are organized based on life events.

This review of Portugal’s digital journey towards progress includes many insights for policymakers in Latin America wishing to emulate its example. It also provides greater evidence on the results and impact of digital reforms, including in terms of efficiency gains and fiscal savings to the public purse. This sort of value-for-money evidence is especially important in times of crisis where

budget constraints are particularly acute. It also helps make the case for the return on investment of going digital, despite high upfront costs. Measures of impact are impressive and illustrate the benefits of digital transformation. For example, SIMPLEX+ 2017 contributed to save annually 8,142 million hours to citizens, 6.3 million hours to companies, and 560,000 hours to the public administration. The benefits produced by these 40 initiatives of the SIMPLEX+ 2017 Program account for 0.12% of GDP. As such, digital reforms are an investment, rather than a cost.

There are many lessons from the Portuguese experience that this report seeks to extract. The most important one is that modernizing government is not only about technology. It is about transforming government and altering traditional relations between citizens and bureaucracies, putting people first and at the center. It is about rethinking bureaucracies in a way that they serve citizens better, instead of citizens having to serve cumbersome bureaucracies based on paper. At its heart, it is a change of culture in public administrations, designed to restore the very concept of public service. It is about changing minds and improving lives, and ultimately strengthening trust in government.

We are convinced that this review will inspire other administrations, as Portugal was also inspired by other examples, because it is the cooperation and the ability to improve what already exists that make nations evolve.

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1

This section analyses some main features of Portugal facilitating or challenging its capacity for digital transformation. In particular, it provides data about its administrative structure, territory, population, indices measuring penetration and adoption of Information and Communication Technology (ICT), indices related to the network readiness, as well as data about Portugal's performance on digital government.

Portugal

There are many contextual factors influencing digital transformations in a country. Some of them include: 1) its territory – affecting the efforts for deploying digital infrastructures; 2) its administrative structure – related to delegation of authority and responsibilities for the delivery of public services; 3) its population – number of residents and its distribution among urban and rural areas as indicators of the human capital existing in different country regions; 4) the penetration and adoption of ICTs in society – influencing the opportunities for having access to and benefiting from ICTs; 5) general aspects related to the country network ecosystem – affecting how ICTs can contribute to national economies and sustainable development; and 6) past and present efforts in

digital government development – assessing the experience of the government in pursuing digital transformations.

Territory and Population - The Portuguese Republic has a territory of 92,152 km²⁽²⁾. Comparing the surface of Portugal and of countries in the Latin America and the Caribbean (LAC) region, Portugal is 23% bigger than Panama and 15% smaller than Guatemala. Portugal had an estimated population of 10,295,909 residents (Instituto Nacional de Estatística, 2019) similar to the population of Dominican Republic. By 2018, 4,457,358 persons live in cities (INE, 2019), meaning that 43% of the population are urban residents. Concerning the metropolitan areas, by

² Data about Portugal, <https://www.portugal.gov.pt/pt/gc22/portugal/sobre-portugal>, last visited 11-02-2021.

April 2020, Lisbon has 2,956,879 residents³ and Porto 1,312,947⁴. Regarding the age distribution of the population, 13.58% of residents are between 0 and 14 years old; 10.94% between 15 and 24; 41.49% between 25 and 54; 13.08% between 55 and 64; and 20.92% are 65 years old or more. Thus, less than 25% of the population are less than 25 years old and about 34% of the population are than 54 years old⁵.

Government Administrative Structure - The 1976 Portuguese Constitution identifies three tiers of government – civil parishes (*freguesias*), municipalities (*municípios*) and administrative regions. In 2013, Portugal implemented an administrative reform and the Law 75/2013 defined two types of administrative regions – metropolitan areas and inter-municipal communities. Currently, there are two metropolitan areas – Lisbon and Porto, and 18 inter-municipal communities. In addition, Portugal has adopted the Nomenclature of Territorial Units for Statistics (NUTS) developed by Eurostat. Based on this, Portugal has 159 cities, 581 small towns and 3092 parishes (INE, 2020). Portugal is a unitary and decentralized state; however, operationally it is a highly centralized system. This is a main difference with most countries in the LAC region.

ICT Penetration and Adoption - Portuguese society has good access to ICTs as well as good levels of adoption according to the indicators published by the International Telecommunication Union (ITU, 2018). From fixed telephone and mobile cellular subscriptions, through 3G and LTE/WiMAX coverage, to individuals using Internet and households with computer and Internet, indicators show that access is high. Portuguese values for such indicators are higher than the world average and the average for 33 Latin America and Caribbean countries⁶ (see Table 1).

3 World Population Review, Lisbon, <https://worldpopulationreview.com/world-cities/lisbon-population/>, last visited 22-04-2020.

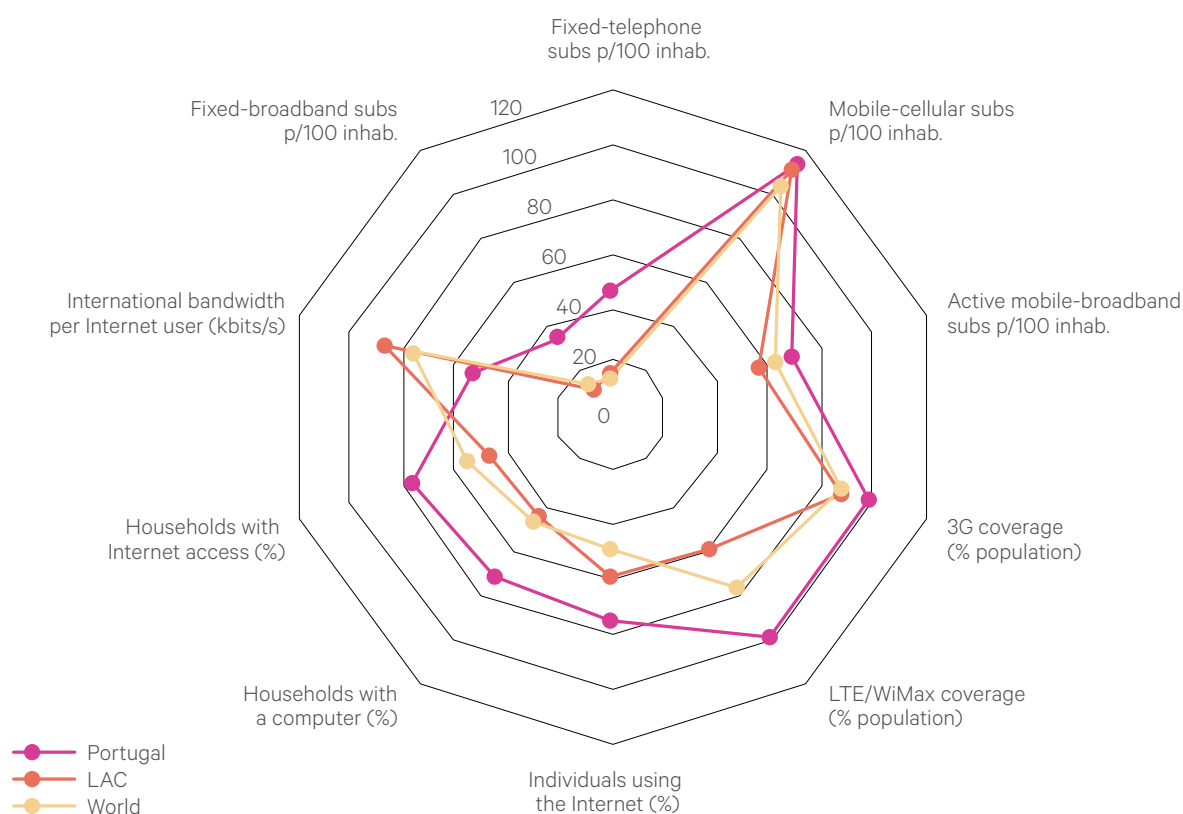
4 World Population Review, Porto, <https://worldpopulationreview.com/world-cities/porto-population/>, last visited 22-04-2020

5 Portugal People and Society, <https://www.cia.gov/the-world-factbook/countries/portugal/#people-and-society>, last visited 11-01-2021.

6 These include the following 33 countries: Antigua y Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and Grenadines, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

Table 1
Measuring ICT penetration and adoption

INDICATOR	PORTUGAL	LAC	WORLD
Fixed-telephone subscriptions per 100 inhabitants	46.8	16.66	13.0
Mobile-cellular subscriptions per 100 inhabitants	113.9	112.84	103.6
Active mobile-broadband subscriptions per 100 inhabitants	68.9	57.11	61.9
3G coverage (% population)	99.5	88.75	87.9
LTE/WiMAX coverage (%population)	98.9	59.74	76.3
Individuals using the Internet (%)	73.8	57.92	48.6
Households with a computer (%)	71.5	45.39	47.1
Households with Internet access (%)	76.9	46.09	54.7
International bandwidth per Internet user (Kbits/s)	52.9	87.02	76.6
Fixed-broadband subscription per 100 inhabitants	34.6	12.67	13.6
Fixed-broadband subscription by speed tiers, % distribution			
256 Kbit/s to 2Mbit/s	0.3	31.02	4.2
2 to 10 Mbit/s	0.8	42.88	13.2
Equal to or above 10 Mbit/s	98.9	30.80	82.6



Source: (ITU, 2018)

2

Network Ecosystem – The Network Readiness Index has recently revised its measurement framework to better assess how the national ecosystem leverages ICT to foster economic development and achieve the sustainable development goals (SDGs). The 2019 revised index measures four dimensions, each one of them divided in the following areas: 1) Technology – measuring access, content, and future

technologies; 2) People – individuals, businesses, and governments; 3) Governance – trust, regulation, and inclusion; and 4) Impact – economy, quality of life, and contribution to SDGs. Table 2 shows the values of the Network Readiness Index for Portugal and compares with the average of the indices for the LAC region and the world⁷ (Soumitra Dutta and Bruno Larvin, 2019).

Table 2
Measuring network readiness

DIMENSIONS	PORTUGAL	LAC	WORLD
Technology	65.67	39.00	41.89
People	56.46	40.32	44.65
Governance	76.80	53.75	61.07
Impact	63.30	50.60	53.14



7 The average of the world considers the 122 countries and economies assessed by the Network Readiness Index. The countries included for the LAC average are: Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay and Venezuela.

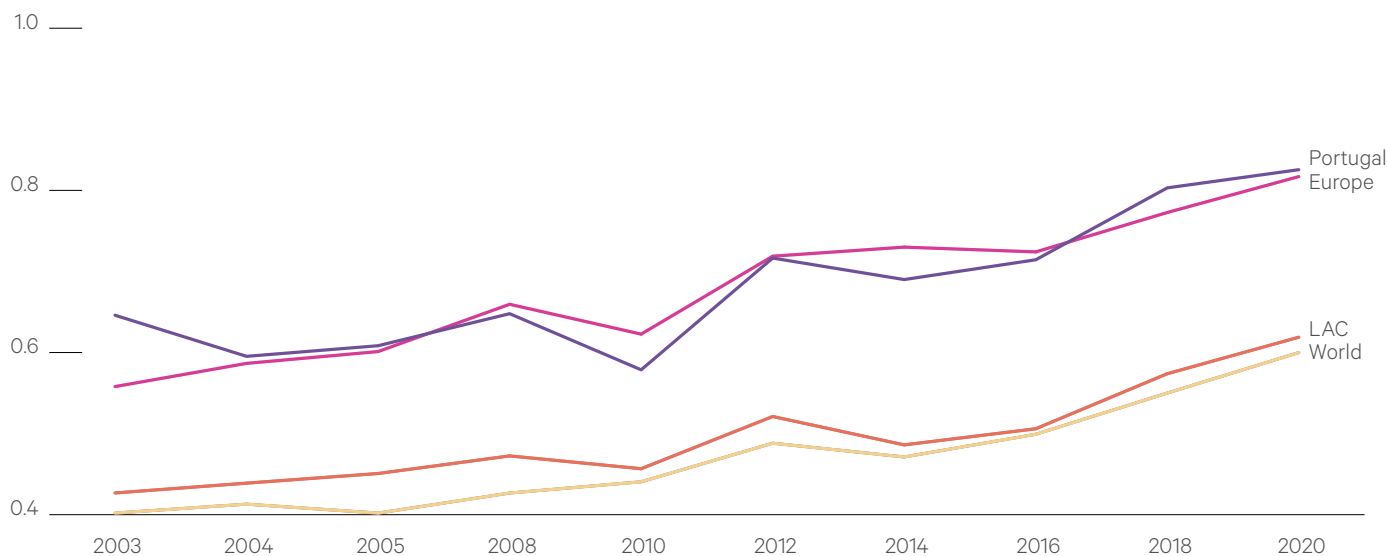
Digital Government - Since the early times of digital government development, Portugal has been recognized with high capacity and one of the global leaders, providing secure sites, and transactional and authentication services in 2001 (UNDPEPA, 2001). It has invested continuous efforts in the last 15 years and has always ranked among the 40 top performers from 2003 to 2020⁸. Table 3 shows the ranking of Portugal in the series of the United Nations e-Government Survey and compares with the world average as well as with the average of the European and 33 Latin America and Caribbean (LAC) countries. Clearly, Portugal's performance has been outstanding compared with the world as a whole, and countries in the LAC region, and similar to the average performance of

the European countries, although it is higher in the first (2003, 2004, and 2005) and last (2018 and 2020) assessments.

Despite this good performance, there are areas for improvement in digital transformation and digital public services, in particular in terms of the adoption of digital channels by individuals for interacting with public entities. According to the 2019 European statistics, only 41% of individuals in Portugal were using Internet to interact with public entities, 35% of these for obtaining information, 22% for downloading official forms, and 30% for submitting completed forms (Eurostat, 2020).

Table 3
Measuring digital government development

YEAR	2003	2004	2005	2008	2010	2012	2014	2016	2018	2020
Portugal	0.6460	0.5953	0.6084	0.6479	0.5787	0.7165	0.6900	0.7144	0.8031	0.8255
Europe	0.5580	0.5866	0.6012	0.6595	0.6227	0.7188	0.7300	0.7241	0.7727	0.8170
LAC	0.4268	0.4389	0.4508	0.4725	0.4567	0.5211	0.4861	0.5060	0.5739	0.6189
World	0.4020	0.4130	0.4020	0.4267	0.4406	0.4882	0.4712	0.4992	0.5500	0.6000



8 It was ranked 26 in 2003 (UNDESA, 2003); 31 in 2004 (UNPAN, 2004); 30 in 2005 (UNPAN, 2005); 31 in 2008 (UNDESA, 2008); 39 in 2010 (UNDESA, 2010); 33 in 2012 (UNDESA, 2012); 37 in 2014 (UNDESA, 2014); 38 in 2018 (UNDESA, 2016); 29 in 2018 (UNDESA, 2018); and 35 in 2020 (UNDESA, 2020).

This section discusses main motivations driving the definition and implementation of the digital transformation strategy.

Drivers

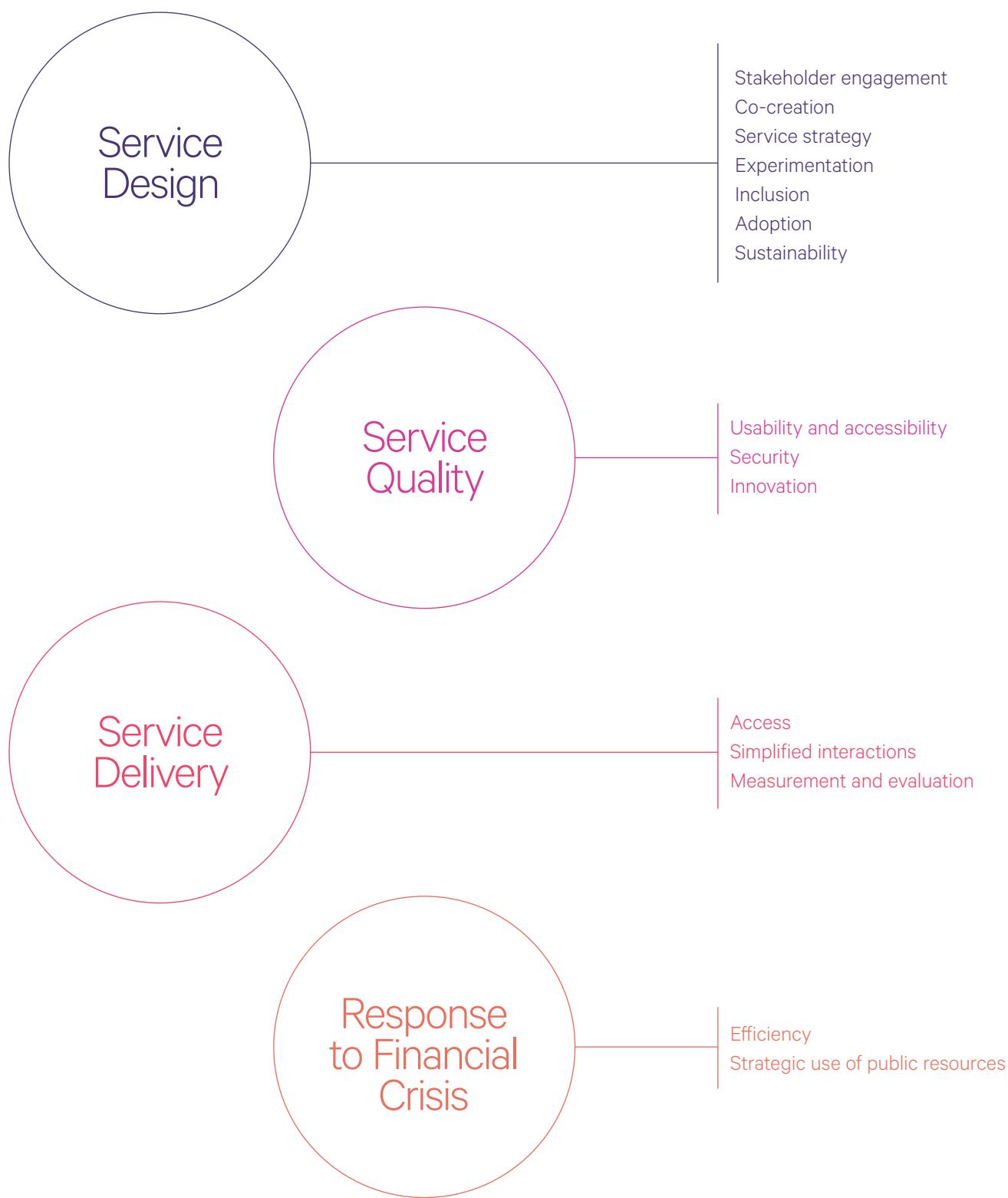
Two major aspects motivated the digital transformation efforts in Portugal. On the one hand, the need to reduce public expenditures in the wake of the 2010-2014 financial crisis, demanding to reduce the fiscal deficit and balance the budget. On the other hand, the need to provide better services to citizens and businesses. The former gave a strong impetus to the administrative modernization process. The later forced to consider opportunities to improve the way services were designed, the quality of services offered, and the service delivery process itself. Thus, we classify the four key drivers of reform as follows: 1) response to financial crisis, 2) service design, 3) service quality, and 4) service delivery. Figure 1 depicts the main motivations grouped in those four identified categories.

Response to Financial Crisis – The main drivers in this category are improving spending efficiency and making strategic use of public resources. Public administration processes should aim at improving *efficiency*, avoiding repetition of platforms and unnecessary portals, reducing redundancies when designing services, and thinking in terms of public service impact. In addition, confronted to a scarcity of resources, making a *strategic use of public resources* – financial, human, technical, and organizational– is crucial to put fiscal accounts in order, carefully considering financial constraints, pressures for producing results, and optimizing returns on investments.

3

Figure 1

Main motivations of the ICT Strategy 2020



Service Design – To better design processes, services and systems is more effective if the key stakeholders are involved and engaged (*stakeholder engagement*) in *co-creation* processes and be able to influence what *service strategy* will guide the service design. The service being designed should be tested before implementation (experimentation) to learn from the contact with users in a controlled environment. The focus of such a strategy should be on designing user-centered and customer-driven services, i.e. services responding to service recipients' needs and expectations, not on government organizations' needs. Services should be designed based on the collaboration between government sectors and levels of government, as well as with the private sector, non-government organizations and citizens (all relevant stakeholders) through co-creation and experimentation (test before implement) mechanisms. In addition, such services should enable greater synergies between the partners involved in designing and delivering them, promoting government information sharing, and facilitating service users to inform the State only once about a given situation. Services should be defined considering social concerns and responding to citizens' needs. In particular, they should ensure that services are inclusive and that

no citizen is excluded from them (*inclusion*). These issues have been addressed by designing services focused on the digital inclusion of the 30% of Portuguese who do not yet directly benefit from ICT (Government of Portugal, 2018), including a number of seamless digital services (e.g., automatic tax submissions and automatic social energy tariff) and the provision of assisted digital services in one-stop shops. Another motivation was to increase the *adoption* of digital services by citizens and business, and to ensure the operational *sustainability* (e.g. human resources trained to operate new systems, among others) and financial sustainability of the services offered.

Service Quality – Three main drivers are related to service quality in terms of users' experience. They refer to usability and accessibility, security, and innovation of public services. *Usability* means that the services provided are convenient and intuitive for the users, and that citizens have a good experience when using them. In this sense, *accessibility* requirements and leaving no one behind are crucial. Public services should carefully address *security issues*, in particular, privacy concerns and cybersecurity risks, as well as the security of government communications systems and the safeguard of citizen's data stored by public entities. In addition, for improving the service quality, AMA envisioned three types of service *innovation*: 1) designing personalized services taking into account previous interactions between citizens and public agencies as well as citizen's choices; 2) defining services considering the specific needs of the local context, and 3) designing services based on the recipients' needs.

Service Delivery – Motivations related to service delivery are grouped into two categories, *access* and *simplified interactions*. *Access* means that services should be easy to access, available anytime and anywhere, and that all service-related information is available in one place. Moreover, they should be delivered through a single window – either physical or virtual, avoiding a labyrinth of websites. Service recipients should be able to interact with public entities through multiple channels (traditional and digital), and to choose the preferred channel for each interaction. *Simplified interactions* entail that citizens have a single identification, are contacted through a single mailbox, and can be notified about their rights and obligations through mobile phones.

4

This section describes challenges faced by AMA and the government as a whole in the implementation of the strategy and the approaches and solutions adopted to overcome them.

Challenges

The main challenges AMA and the government as a whole faced in the implementation of the strategy can be grouped into five types: 1) **change management**, 2) **governance arrangements**, 3) **resources constraints**, 4) **participatory mechanisms**, and 5) **data management**. For each, Table 4 summarizes the challenges faced and the approach adopted or proposed to overcome them.

ICT STRATEGY 2020 VISION

To provide better public services to citizens and business focusing on the digital transformation of public administration and using ICT as a catalyst of public sector modernization.

Table 4

Challenges faced and approaches adopted or proposed to overcome them

TYPE	CHALLENGE	ADOPTED OR PROPOSED APPROACH
Managing change	Resistance from agencies in the implementation of measures that allow integration, interoperability, and the reform and redesign of public services.	The political leadership and commitment of the highest authority (Prime Minister) contributed to overcome it.
	Managing changes in citizen's priorities and behaviors, and their increasing expectations for better public service quality, driven in part by comparisons with the services offered by the private sector.	AMA highlights that the approach to overcome this was to ensure that the redesigned services deliver better public value.
	Having the local authorities to offer their services through solutions provided by the national government.	AMA recognizes as a lesson learned that it is important to reach local authorities and involve them on the early stages of each initiative.
Governance arrangements	Difficulties to have IT experts as representatives from some of the Ministries in the Council for Information and Communication Technologies (CTIC), which is the governance body responsible for monitoring the implementation of the Strategy (see Section 5).	AMA works with the representatives designated by the Ministries as members of the CTIC and promotes consultation within the ministries.
	The Government Chief Information Officer (GCIO) position is not institutionalized in Portugal	For the government as a whole, the responsibility is sometimes assumed by a member of the Board of AMA. Some public entities do have a designated Chief Data Officer (CDO).
Resources constraints	Two challenges related to human resources are the lack of qualified IT specialists in the public sector and limited digital competences among civil servants.	The digital transformation strategy defined initiatives to build digital skills in human resources, both in the public sector and society at large (see TicAPP, LabX and INCoDe 2030, Section 8).
	A challenge related to financial resources is the limited funding capacity of the government, and the decentralized management of the financial resources since public entities have autonomy for deciding on their IT budget.	AMA is improving the efficiency in the use of financial resources and the management of the government's IT budget (e.g. it defines arrangements with IT providers and pre-approves all expenditures over € 10,000). SAMA2020 manages resources from the European Union for ICT modernization that are allocated to public entities through open calls and is totally aligned with AMA's guidelines (see SAMA2020, Section 8).
Participatory mechanisms	Being able to reach multiple stakeholders in a short period of time and to collect their ideas for the SIMPLEX Program.	AMA conducted multiple onsite workshops throughout the country and implemented an online channel for receiving actionable ideas and proposals for the SIMPLEX Program (see SIMPLEX, Section 8).

TYPE	CHALLENGE	ADOPTED OR PROPOSED APPROACH
Data Management	A major challenge for the development of the government portal (eportugal.gov.pt) was to define the information architecture of the portal, the classification of services, how to resolve different names given to the same data, and how to design the most effective way to access the service. Often, the agencies delivering the service did not have the required information of the service available	AMA needed one year to resolve the challenges associated with data management for the portal. From their experience, AMA synthesized two lessons learnt: 1) there are two processes required for populating a government portal – cataloguing services and regulating the publication of the service catalogue, and both processes should commence at the same time; and 2) It should be considered that not all services are equally demanded by service recipients; thus, for making the portal more appealing and dynamic, AMA invested more efforts on the 25 services that account for the 80% of the service recipients’ requests.

This section analyses the main components of the ICT Strategy 2020, including its vision, objectives, guiding principles, pillars, measures and actions, as well as example initiatives for each pillar. It also provides an overview of the new action plan for the transition towards Portugal Digital.

Strategy⁹

The “ICT Strategy 2020 – Public Administration Digital Transformation Strategy” was developed by the Council for Information and Communication Technologies in the Public Administration (CTIC) and approved by the Council of Ministers on 2 March 2017. It comprises a four-year plan for the period 2017-2020, which was revised in 2018 (Government of Portugal, 2018).

The ICT Strategy 2020 aims at implementing profound transformations in the way the public administration operates and in the design of public services. Its vision is to provide better public services to citizens and businesses focusing on the digital transformation of public administrations and using ICT as a catalyst of public sector modernization.

To achieve this vision, the strategy defines three main goals: 1) making digital services simpler, more accessible and inclusive; 2) fostering the adoption of digital services by citizens and businesses; and 3) contributing to sustainable development through digital transformation.

The ICT Strategy 2020 is underpinned by three guiding principles: 1) *data security, resilience and privacy* to protect the information held by the public sector, 2) *public services usability and inclusion* to improve access and ease of use, 3) *public administration employees’ digital competences and resource sharing* to improve efficiency.

To achieve its vision and fulfil the goals, the strategy was structured in three main pillars: 1)

9 The Portuguese Government is launching the new strategy for the digital transformation of the public administration in third quarter of 2021.

integration and interoperability, 2) innovation and competitiveness, and 3) resource sharing. In total, the strategy defines 12 measures and 37

actions. The structure of the ICT Strategy 2020 is described in Table 5.

Table 5
ICT Strategy 2020

VISION

To provide better public services to citizens and business focusing on the Public Administration digital transformation and using ICT as a catalyst of public sector modernization

GOALS

1. To make digital services simpler, more accessible and inclusive
2. To potentiate digital service adoption by citizens and companies
3. To contribute to sustainable development through digital transformation

PRINCIPLES

Strengthening...	To...
data security, resilience and privacy	protect the information held by the PA
public services usability and inclusion	improve access and ease of use
PA employees' digital competences and resource sharing	improve efficiency

PILLARS

Integration and Interoperability	Innovation and competitiveness	Resource Sharing
<ul style="list-style-type: none"> - Overall governance - Sectoral action plans - Interoperability - Common ICT architectures 	<ul style="list-style-type: none"> - Electronic identity - Transparency and participation - Digital services - Sectoral innovation 	<ul style="list-style-type: none"> - ICT centre of competence - Data centre and cloud - Communications - Common, open source apps
4 Measures	4 Measures	4 Measures
10 Actions	17 Actions	10 Actions

The **Integration and Interoperability** pillar aims at facilitating the design of seamless services based on citizens' life events or companies' business episodes organized and delivered through single contact points. It also focuses on the implementation of the *once-only principle* that forbids public agencies to request citizens and business to provide data that is already in

the hands of the public administration. Table 6 shows the four measures and 10 actions of the Integration and Interoperability pillar. Examples of strategic initiatives in this pillar include the implementation of the governance system (see Section 4) and the interoperability platform of the public administration (iAP) (see Section 8 and Appendix B).

Table 6

Integration and interoperability pillar – measures and actions

MEASURES	ACTIONS (TO...)
ICT Governance	<ul style="list-style-type: none"> – define and implement a cross-sectional governance model for the ICT – consolidate the ICT governance model for each governmental area
ICT Sectoral Plans	<ul style="list-style-type: none"> – approve and publish ICT sectorial plans per governmental area, aligned with strategy, allocations and sectorial competencies – elaborate annual projects and ICT investment plans
Interoperability	<ul style="list-style-type: none"> – provide an electronic service catalogue – extend interoperability to document management solutions – mass use the interoperability platform (iAP) for administrative simplification and modernization initiatives.
Reference Architecture	<ul style="list-style-type: none"> – define and implement common ICT architectures – optimize ICT investments – define and implement a national information security strategy

5

The **Innovation and Competitiveness** pillar focuses on bringing innovation to the public sector by applying emerging technologies to (re)design innovative digital services. In particular, it includes measures for applying data analytics and artificial intelligence techniques to design anticipatory services that are delivered proactively, using augmented reality in the design of new services

and blockchain to ensure personal data protection and integrity, among others. Table 7 shows the four measures and 17 actions of the Innovation and Competitiveness pillar. Example of strategic initiatives include the evolution of eID and Digital Mobile Key, Simplex+ and iSIMPLEX, the government portal, digital medical prescriptions, LabX and GovTech (see Section 8).

Table 7

Innovation and competitiveness pillar – measures and actions

MEASURES	ACTIONS (TO...)
Electronic Identity (eID)	<ul style="list-style-type: none"> – develop and provide a Citizen Card with new features – allow a single authentication of citizens in Public Administration (PA) sites and systems – provide the Professional Competences Certification System (Sistema de Certificação de Atributos Profissionais, SCAP) for signing and authentication
Transparency and Participation	<ul style="list-style-type: none"> – extend the open data disclosure and use via dados.gov.pt – disclose execution indicators and benefits accomplished by executing PA policies, initiatives and projects – provide instruments that facilitate the participation of citizen in public decision processes
Digital Services Accessibility	<ul style="list-style-type: none"> – integrate user experience in service processes – define common standards and models for the uniformization of the graphics and usability of electronic services – consolidate electronic services in Portal do Cidadão – provide information in the Portal do Cidadão, depending on citizen location – provide citizen document exchange – automate PA service provision and response to life events – adopt virtual workstations, by incorporating the Bring Your Own Device (BYOD) concept – drive the adoption of mobile ways of work and work from home in the PA – implement Wi-Fi roaming in the PA – GOVroam – scan the PA’s physical archive
Sectoral Innovation	<ul style="list-style-type: none"> – develop sectorial actions to improve provided service quality and/or PA internal effectiveness by using the IC

Table 8

Resource sharing pillar – measures and actions

MEASURES	ACTIONS (TO...)
ICT Center of Competences	<ul style="list-style-type: none"> – define the operation model and drive the development of an ICT center of competencies – promote the development of digital competences
Cloud Data Centres	<ul style="list-style-type: none"> – capitalize and concentrate computation capacity in data processing centers – create an interoperable cloud
Public Administration Communications	<ul style="list-style-type: none"> – rationalize voice and data communications – implement a common multi-service communications network – define and implement unified communication strategies
Common and open-source Apps	<ul style="list-style-type: none"> – globally manage State software cross-sectional licensing needs (including creation, reuse and negotiation) – promote and disseminate open source software (OSS) – create and promote the PA software catalog

The **Resource Sharing** pillar aims at promoting a culture of sharing different type of resources (e.g. cloud datacenters, an ICT center of competences) among public entities, as well as at building human capacity, particularly developing digital competencies among civil servants and the society for the adoption of digital services. For example, it includes solutions based on cloud computing to produce a paradigm shift in the way public agencies store, process, and safeguard information, and develop technical solutions. This pillar also includes measures related to increasing the use of open source applications, already used in the Citizen Portal and the Document Exchange systems. Table 8 shows the four measures and 10 actions defined for this pillar. An example initiative is Portugal INCoDe.2030 (see Section 8 and Appendix B).

In March 2020, the Government announced a new action plan for the transition towards Portugal Digital. It is an overarching plan including relevant existing initiatives, like the SIMPLEX Program and INCoDe.2030 (see Section 8). The vision of the plan is that “Portugal Digital is the country’s

transformation engine. Its purpose is to accelerate Portugal, without leaving anyone behind, and to project the country into the world”. Table 9 shows the vision, goals, principles, the three pillars with the corresponding action lines and the six catalysts of the plan.

Table 9

Action plan for Digital Transition - Portugal Digital

VISION

Portugal Digital is the country's transformation engine.

GOALS

To accelerate Portugal, without leaving anyone behind, and to project the country into the world, by digitally empowering people, digitally transforming companies, digitalizing the State

PRINCIPLES

Crosscutting focus...	considering citizens, businesses and the State as structural dimensions of the digital transformation
Ambition...	to establish Portugal as an international reference, benchmarking with the best global practices, as well as with international and european standards
Pragmatism...	capitalizing on the various existing programmes and initiatives related to the digital domain
Engagement...	of different public and private actors in the implementation of the plan, in the monitoring and dissemination of the results and impact obtained
Communication and Promotion...	of the Portuguese strategy at the international level, with a multichannel perspective and building the brand “Portugal Digital”
Monitoring and accountability...	of the different owners, through the definition and implementation of a transparent model for monitoring the results and impact.

PILLARS

Training and Digital Inclusion of People	Digital Transformation of the Business Fabric	Digitalization of the State
<ul style="list-style-type: none"> – Digital education – Professional training – Inclusion and e-literacy 	<ul style="list-style-type: none"> – Entrepreneurship and investment attraction – Business fabric focusing on SMEs – Scientific and technological knowledge transfer for the economy 	<ul style="list-style-type: none"> – Digital public services – Agile and open central administration – Connected and open regional and local administrations

CATALYSTS

Regulation, cybersecurity and privacy

Circular economy of data

Connectivity and infrastructure

Disruptive technologies

Alignment with European digital strategy

Communication and promotion

The plan defines 12 flagship initiatives, four in each pillar, as presented in Table 10.

Table 10

Flagship initiatives of the Action Plan towards Portugal Digital

PILLAR	FLAGSHIP INITIATIVES
Training and Digital Inclusion of People	#1 Digitalization program for schools
	#2 Intensive and specialized training program in the digital area for 3000 participants
	#3 Digital inclusion program for 1 million adults
	#4 Social tariff for access to Internet services
Digital Transformation of the Business Fabric	#5 e-Residency program – digital identification system
	#6 Promotion of Free Technological Zones through attractive regulatory frameworks
	#7 Digital training program for SMEs in the interior part of the country
	#8 Digital innovation hubs
Digitalization of the State	#9 Digitalization of the 25 public services mostly used by citizens and businesses
	#10 Translation of public administration websites to English
	#11 Cloud strategy for the Public Administration
	#12 Simplification of ICT contracting services by the Public Administration

6

This section explains the governance structure responsible for leading and coordinating the whole government efforts for implementing the digital transformation strategy.

Governance

The need for defining a common strategy driven from and by the center of government was the main motivation for defining a governance structure. This led to the creation of the Council for Information and Communication Technologies (CTIC) by Resolution of the Council of Ministers no. 33/2016 (Res.33/2016)¹⁰. CTIC is the *coordination structure* or institutional network in charge of the operationalization of the digital transformation strategy and global action plan aiming at leveraging on the transformative potential of ICT and enhancing technical and financial efficiency¹¹. CTIC is composed of a

Technical Committee (TC) and an Advisory Board. The governance structure of CTIC is described in Figure 2 and explained below.

As defined by the Res. 33/2016, the TC comprises representatives from: 1) the Agency for Administrative Modernization (AMA); 2) the Management Center for the Electronic Government Network (CEGER); 3) the Government Shared Services Entity (ESPAP); and 4) government sectors, i.e. a representative from each Ministry in charge of ICT responsibilities. The TC is chaired by AMA and includes a

¹⁰ Diário da República, 1.ª série — N.º 107 — 3 de junho de 2016, Resolução do Conselho de Ministros n.º 33/2016, available at: https://www.ama.gov.pt/documents/24077/29210/RCM33_2016.pdf/6a245912-228d-4b56-9ff9-cf5d3b5c175e, last visited 27-04-2020.

¹¹ The CTIC - *Conselho para as Tecnologias de Informação e Comunicação na Administração Pública* (Council for Information and Communication Technologies in the Public Administration) was created in 2016, with the organization, composition and relevance set by the Resolution of the Council of Ministers no. 33/2016 of June 3rd, with the goal of elaborating and monitoring the strategy for the use of Information and Communication Technologies (ICT) in the Public Administration (PA). CTIC appears as an evolution of the former ICT governance model based on the GPTIC - *Grupo de Projeto para as Tecnologias de Informação e Comunicação* (Project Group for Information and Communication Technologies) created in 2011, therefore benefiting from the gained experience and knowledge (ICT Strategy 2020: 8).

representative of CEGER and a representative of ESPAP, who are called upon by AMA as needed,¹² as well as 19 government representatives from the various government sectors. The TC is accountable to the Prime Minister through the Minister to whom that duty is delegated. Initially the TC was meeting every two weeks, currently, they are meeting monthly.

The CTIC Advisory Board comprises five independent and renowned experts in the area of administrative modernization and ICT, nominated by the Prime Minister or the member of the Government to whom this responsibility is delegated. The Advisory Board is responsible for issuing opinions and making recommendations on matters related to the definition and implementation of the ICT strategy, including the ICT sectoral plans. It meets twice a year, and extraordinarily following a request from the Prime Minister or the TC. The services provided by the Advisory Board members are non-remunerative. Currently, the Board members are all from academia. The Board also monitors the implementation of the strategy as an external observer, but it is not involved in strategic or operational decisions.

As presented above, AMA has a major role in the coordination of the strategy. Created in 2007, AMA is an independent public agency endowed with administrative and financial autonomy and its own assets¹³. It has 300 employees, approximately 80% of them work in the Citizen Shops (single physical spaces where public services from all state levels are delivered). Less than 10% of its personnel performs administrative activities, like payments, contracting, and public communication, and the remaining staff is in charge of the design, coordination

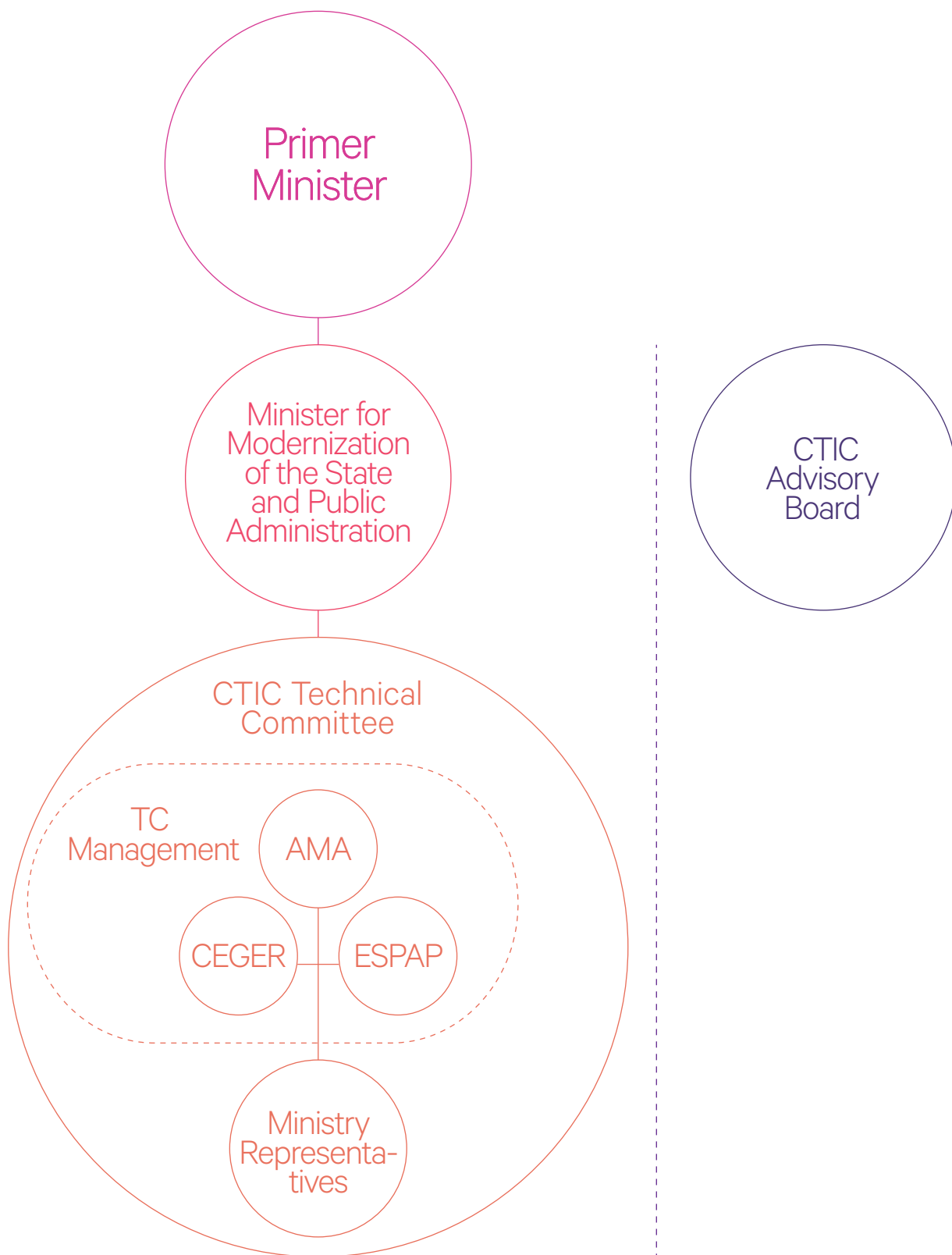
and monitoring of AMA's goals. As a part of their oversight powers, AMA is involved in a mandatory and binding process of prior assessment of all ICT state purchases that surpass 10,000 euros to ensure that projects have a significant contribution to the development and modernization of the Administration and follow the national priorities. AMA is supervised by the Secretary of State for Innovation and Administrative Modernization, located within the Ministry for Modernization of the State and Public Administration.

AMA has three main mandates: 1) improving service delivery, 2) driving digital transformation, and 3) fostering public participation and innovation. By combining the functions of service delivery and digital transformation, AMA is the main driver for the simplification and digitalization of public services, but is also responsible for managing and coordinating the Citizen Shops and Spots at the point of delivery. As such, it is responsible for the design and delivery of digital services end-to-end. Its mandate for driving the digital transformation of the public sector entails designing – in collaboration with other state agencies - coordinating and evaluating the implementation of the ICT Strategy. Its task of fostering public participation entails incentivizing and enabling initiatives that facilitate both citizens and businesses participation in the design and implementation of public policies and digital services.

12 CEGER is only responsible for implementing digital initiatives at the "Cabinet Executive Office", while AMA's responsibilities are transversal to the whole Public Administration.

13 Decreto-lei 43/2012, art. 1, available at: https://www.ama.gov.pt/documents/24077/28645/DL43_2012.pdf/8463afef-7590-4245-b068-1a759712a7d7, last visited 28-04-2020.

Figure 2
Governance structure



Regarding the mandate related to improving service delivery, AMA identifies, develops and evaluates projects related to the simplification and digitalization of public services across the entire public sector, and coordinates the actions for their implementation. There are two mechanisms for such projects: 1) AMA pre-evaluates the proposals compliance with pre-defined directives regarding standards of accessibility, cybersecurity, integration, interoperability and usability, among other; and 2) European Union (EU) funds, managed by the Support System for digital transformation of the Public Administration (*Sistema de apoio à transformação digital da Administração Pública*, SAMA2020) (see Appendix B).

Three main critical governance factors contributing to sustaining over time the continuity of digital transformation efforts include obtaining and ensuring support from citizens and business, shared vision about the strategic role of digital transformation for public administration modernization, and the institutional empowerment of AMA at the center of the government.

— First, government reformers implemented services to businesses and citizens that deliver significant value for them, e.g. enabling opening a business in a very short time and with simplified requirements, and establishing Citizen Shops for having access to most public services in one single place and through extended working hours. Based on their own experience, businesses and citizens are able to assess the relevance of the transformation efforts, becoming supporters of them, and in this way, they become the reformer's main allies.

— Second, governments from different political parties, alternating in the management of the Portuguese public administration showed a shared approach about the role of digital transformation in the modernization of government administrative structures and procedures. Thus, for the last 15 years, they ensured the continuity of efforts, showing that digital transformation is more a state policy than a government policy.

— Third, since its inception AMA has been located at the very center and at the top of the government organizational structure, reporting to the Council of Ministers through a Secretary of State for Administrative Modernization, also responsible for digital government, and working under the Minister of the Presidency and Administrative Modernization. Only recently, after this modernization culture became ingrained in the state, AMA was put under a new Ministry, the Ministry for State Modernization and Public Administration, which brings together all the core entities responsible for public administration, in a holistic approach to state modernization. Such an organizational setting as well as the delegated authority reflect the political importance given to the digital agency, facilitating the definition and coordination of a whole-of-government agenda.

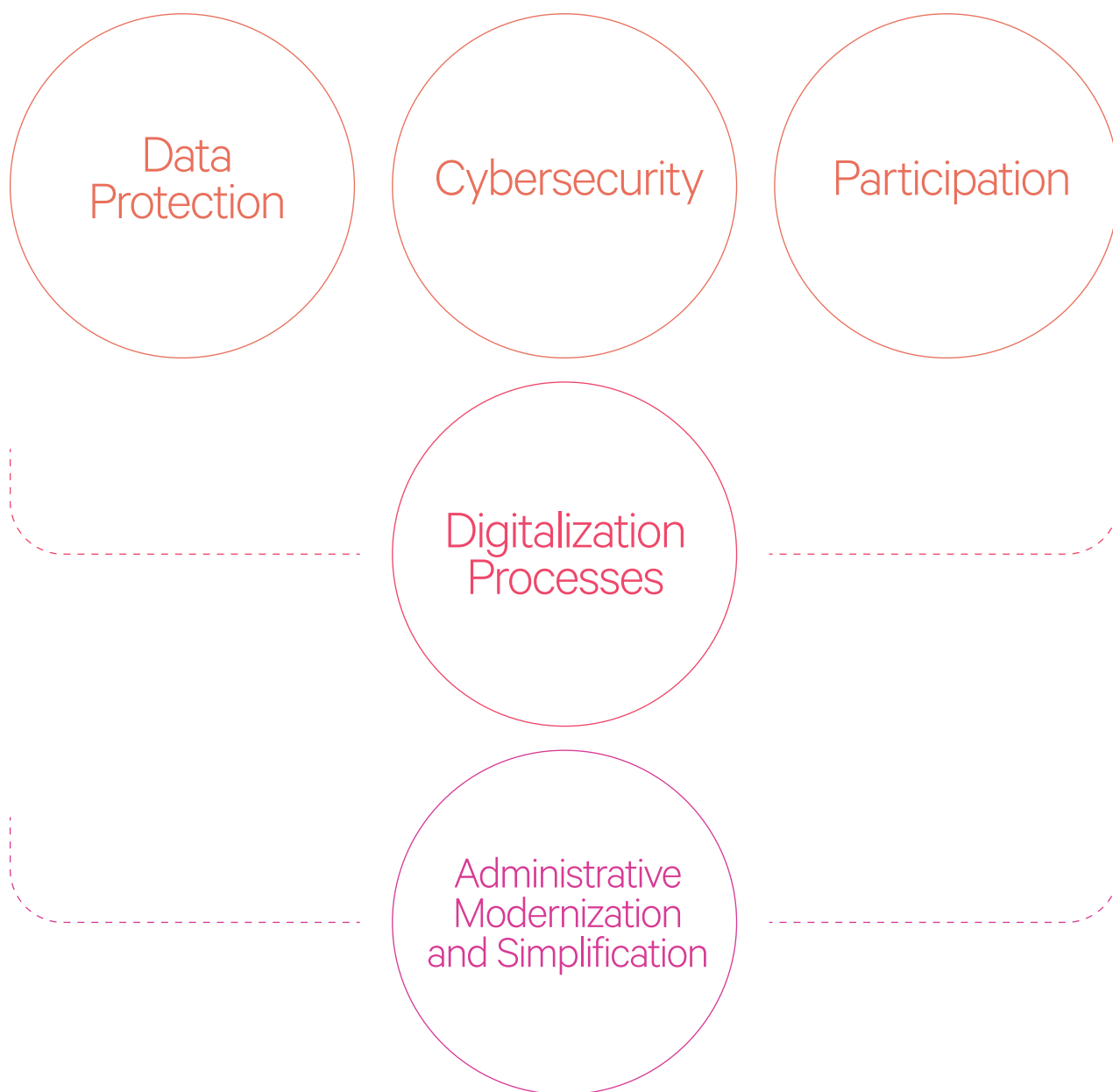
This section analyses the legal and regulatory instruments that facilitate the implementation of the government's digital transformation strategy.

Legal and Regulatory Framework

Portugal has established a comprehensive framework of legal and regulatory instruments enabling and giving validity to digital transformation efforts. As shown in Figure 3, we can classify such instruments into five main categories: 1) administrative modernization and simplification, 2) digitization processes, 3) data protection, 4) cybersecurity, and 5) public participation. Below, we discuss main instruments in each area and Appendix A includes the list of them with their corresponding references.

7

Figure 3
Legal and regulatory framework



Administrative Modernization and Simplification

The first decree-law establishing the need for administrative modernization was enacted in 1999. In 2011, a decree law defined a significant simplification of the procedures for obtaining business licenses. In 2014, there is a new wave of simplification efforts, starting with an update of the decree-law of 1999 to support more sophisticated measures, like the implementation of the “once-only” principle promoted by the European Union. The first Code of Administrative Procedure was established in 1991 and amended in 1996. Since then, it had never been again revised. However, new requirements and challenges are nowadays placed on the Public Administration and, more than that, on the exercise of the administrative function, so in 2015 the present Code of Administrative Procedure was drafted, revealing a profound transformation of the previous Code of Administrative Procedure. Thus, the Government, understood that the solutions proposed for such important instruments in administrative law, such as regulations and the Administrative Act, were so innovative that a brand new Code was established. The Code defines the principles for open and digital transformation, data security, data protection and collection by public institutions. It also advocates for the use of digital solutions in the public administration.

Digitalization Processes

Various instruments provide the legal foundations for the digitalization processes, including those enacting the legal recognition of the digital signature (1999 and revised in 2004); the launching of the public administration interoperability platform (2007), which enabled the deployment of the Citizen Card serving as an

electronic document using the digital signature (2007), also integrating professional attributes enabling to digitally sign as a professional (2017); the digital mobile key enabling citizen’s authentication in government websites (2014); the use of open standards in public administration information systems (2011); interoperability standards (2012, revised in 2018); the digital by default provision of public services (2014) and the guidance of a digital mediator providing assistance for citizens to operate digitally (2017); the adoption of the interoperability platform and standards for information exchange (2015); the unique digital address and the use of electronic notifications (2017), and the accessibility of websites and mobile applications (2018).

Data Protection

The Portuguese Constitution established in 1976 defines the citizens’ fundamental right of access to archives and administrative records, except information related to state security, criminal investigation and personal privacy. Following, some laws were defined to comply with European Union directives, including those to ensure the protection and privacy of personal data (2004), access to administrative and environmental data and reuse of administrative documents (2006). In addition, on 8 August 2019, the Law No 58/2019 was published, establishing the application of Regulation (EU) 2016/679 of the European Parliament and the Council of 27 April 2016, on the protection of individuals with regard to the processing of personal data and to the free movement of such data (GDPR) in Portugal, thus repealing Law No 67/98. The portability of personal data in compliance with GDPR has been also regulated (2018).

Cybersecurity

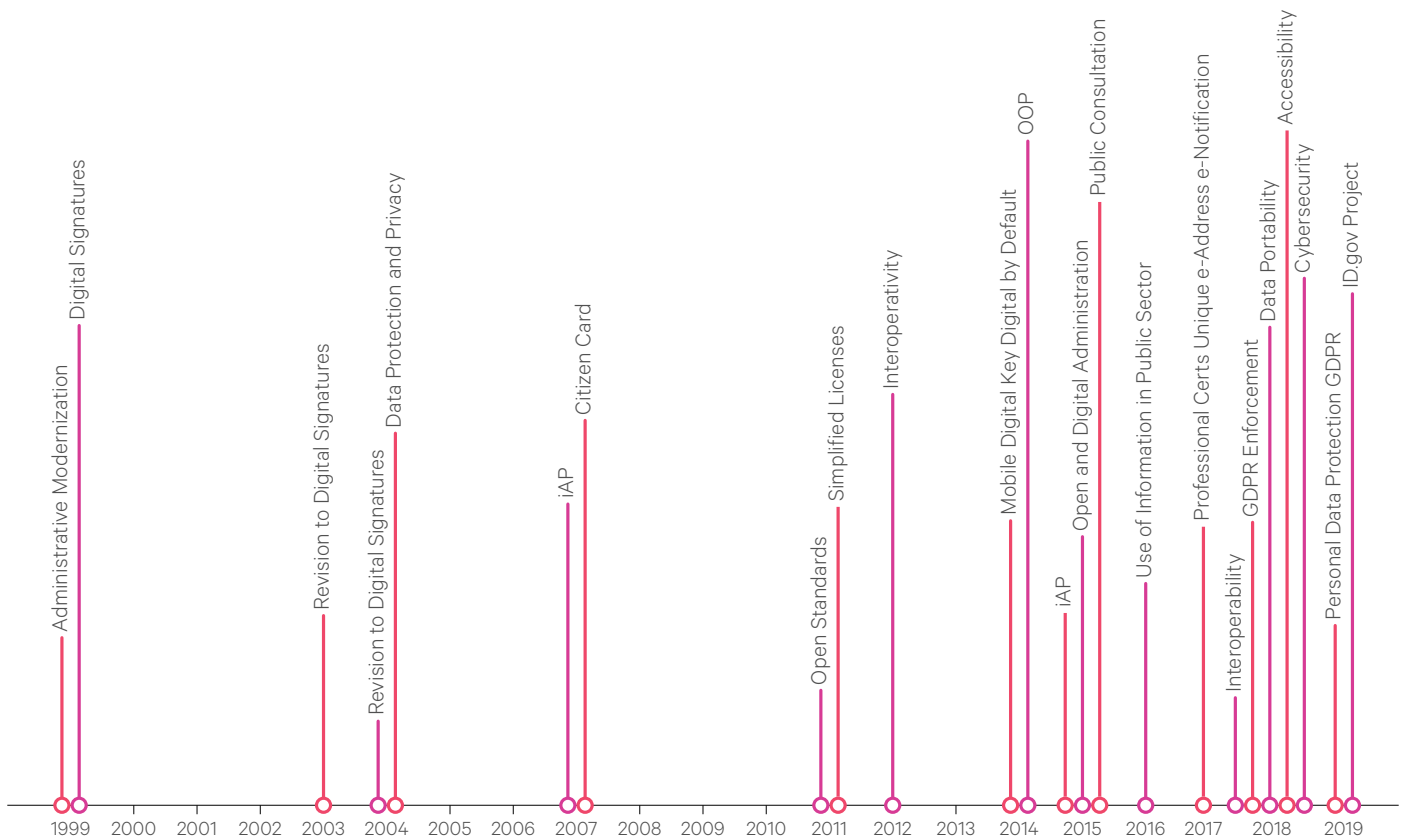
In 2014, Portugal establishes by a decree the National Cybersecurity Center (CNCS) whose mission is to help Portugal use the cyberspace in a free, reliable and safe way. In 2018, a decree-law, establishes the legal framework for cybersecurity in compliance with a European Parliament directive.

Public Participation

Portugal has a law and a resolution of the Council of Ministers defining that all changes in legislation and public policies must be submitted to a public consultation process.

Figure 4 shows main legal instruments in a timeline.

Figure 4
Timeline of legal instruments for digitization processes



8

Discussion

Already in 1999, two instruments laid the foundations for the digital transformation path in Portugal enabling the first steps towards digitization – one setting the stage for administrative modernization and the other establishing the legal recognition of the digital signature. Another major progress was achieved in 2007 with the creation of the citizen card, aiming at simplifying identification of citizens, providing an electronic document, and facilitating access to services.

A major milestone occurred in 2011, when a disruptive approach for simplifying business licensing was adopted responding to the need of promoting businesses and enhancing business climate. It is likely that this approach has contributed to ensure the support from businesses towards digital transformation. The efforts focused on improving government internal operations aiming at delivering more mature digital services. Thus, major legal instruments refer to the adoption of open and interoperability standards, interoperability platform, and the Code of Administrative Procedure defining principles for an open and digital administration.

Regarding data, the post-revolution Portuguese Constitution of 1976 defines citizen's right of access to administrative files and records. Other legal instruments related to data protection and privacy, as well as the enforcement of GDPR were adopted to comply with European Parliament directives. Currently, there are no legal foundations to underpin data governance in the public administration.

Finally, the Portuguese legal and regulatory framework was of utmost relevance at the time of facing the COVID-19 pandemic. At the time when face-to-face interactions were forbidden, the Portuguese public service did not stop, continued serving, containing, and calming citizens, and creating conditions for them to feel accompanied by the state and the government. Relying on the existing foundations, “the Government passed more than 80 decrees in three months, to alter and open new legislative possibilities. All this framework was crucial to maintain democratic stability as well as the stability of the public service”¹⁴ (see Appendix C for details about readiness and measures for facing COVID-19 pandemic).

¹⁴ Interview to Anabela Pedrosa, Secretary of State of Justice, conducted on 23-07-2020.

This section analyses how Portugal has leveraged strategic enablers to facilitate the implementation of its digital transformation strategy. It assesses four types of enablers – common technical solutions, supporting strategies, new technologies, and human capacity.

Enablers

Reforming governments that have implemented digital transformation strategies have recognized the importance of key enablers that facilitate and streamline them. Examples of such enablers include common technical solutions and shared services for the provision of public services, such as the authentication and payment systems; the concurrent implementation of sectoral strategies; the conformation of multidisciplinary teams; investing in digital skills in society and building human capacity in government. For the Portugal digital transformation strategy, we have identified the following enablers:

Common technical solutions – AMA developed two technical solutions to be used government wide as foundations for the implementation of the digital transformation strategy, namely, the digital identity and the interoperability platform. The provision of digital services at the interactive, transactional and connected levels (UNDESA, 2008) requires a secure system for the authentication of service users through a national digital identity. Moreover, given the massive use of mobile devices by people, having a specific eID mechanism for authenticating a person through mobile devices is critical. In addition, an interoperability platform enabling the sharing of information and the collaborative execution of business processes by several public entities is a key element for delivering integrated services.

Supporting strategies – Associated strategies can complement national digital transformation strategies, such as the Portuguese national ICT2020 Strategy. In Portugal, these have included: 1) the open government principles enshrined in the National Action Plan for Open Administration (AMA, 2018) adopted in 2018 and which is structured around four main axes – open data, transparency, use of ICT and digital inclusion and public participation; 2) the cybersecurity policy contained in the National Cyberspace Security Strategy for 2019-2023 (Government of Portugal, 2019) developed by the High Council of Cyberspace Security to ensure the protection of information services and critical infrastructures, and promote a free, secure and efficient use of cyberspace by all actors in Portugal; and 3) important sectoral strategies such as the digital justice (Ministry of Justice, 2020) and the digital health strategies of direct relevance to citizens.

Adoption of new technologies – The adoption of new technologies, like artificial intelligence, big data, and data analytics, is critical to facilitate innovation in the public sector. In this regard, Portugal has proactively sought to integrate new technologies in its public administration. In 2018, it adopted a National Strategy on Artificial Intelligence 2030 – *AI Portugal 2030* (INCoDE 2030, 2018); the government’s digital transformation strategy analyzed in this report, the ICT Strategy 2020 (Government of Portugal, 2018), and a funding program for Data Science and Artificial Intelligence in the public administration (FCT, 2018) (FCT, 2019). In 2019, INCoDe.2030 launched the Advanced Computing Portugal 2030 (ACP.2030)¹⁵, a science, innovation and growth strategy aimed at promoting and

expanding advanced cyber infrastructure in Portugal until 2030 and which is closely related to AI Portugal 2030. Its purpose is to generalise access to scientific computing and foster cooperation based on advanced scientific computer networks, as well as promoting international collaboration to support advances in different areas and fields. ACP.2030 encompasses three major domains of activity: 1) creating a national supercomputing infrastructure at the service of research and innovation; 2) developing and retaining high-value people with advanced computing skills; and 3) implementing a public policy info-structure to fill in the gap between infrastructures and people in a way that fosters the creation of high-value services and software. A relevant initiative in this domain is the inauguration, in July 2019, of the Minho Advanced Computing Centre (MACC)¹⁶, home of the first supercomputer operating in Portugal (BOB). This machine is part of the Iberian Advanced Computing Network and marks the start of the Portuguese participation in the European High-Performance Computing initiative (EuroHPC). Deucalion, the second supercomputer to operate in Portugal under the EuroHPC, was contracted in November 2019 and will also be installed at MACC.

Human capacity – One of the main resources needed for implementing profound changes in the public sector are qualified human resources. Human capital and digital skills are needed in the central digital agency but also across government and public entities. Portugal has launched several initiatives related to building human capital: One is the creation of the Center for Digital Competencies of Public Administration (TicAPP)¹⁷ as a center

15 ACP.2030, <https://www.incode2030.gov.pt/en/advanced-computing-portugal-2030>, last visited 11-01-2021.

16 MACC, <https://macc.fccn.pt/>, last visited 11-01-2021.

17 TicAPP, Centro de Competências Digitais da Administração Pública, <https://ticapp.gov.pt/en/mission-2/>, Resolución nro. 22/2018 de Presidencia do Conselho de Ministros

of excellence specialized in the field of digital transformation of the public sector (see Section 8 and Appendix B). Another initiative is the AMA Academy program (AMA, 2019) for building capacities of civil servants (see Section 8 and Appendix B). A third one, is Portugal INCoDE.2030 (Portugal INCoDE.2030, 2017) - dedicated to strengthening digital competencies in society (see Section 8 and Appendix B).

This section analyses several flagship initiatives part of the government's digital transformation strategy.

Strategic Initiatives

A digital transformation requires defining and implementing a set of interrelated efforts that comprehensively contributes to building different types of digital capacities in government and society. Figure 5 describes some initiatives taken forward in Portugal, which are considered good practices.

The Portuguese digital transformation strategy includes major flagship initiatives in the following areas: a) **delivering e-services** to citizens, like the online change of address, and businesses, e.g. Zero Licensing; b) **diversified delivery channels**, including digital, like the ePortugal portal; traditional ones, e.g. Citizen Shops; and integrated ones – e.g. Citizen and Business Spots

comprising physical places providing access to digital services, albeit through traditional means, namely a physical counter with a public servant acting as a mediator; and c) **common technical solutions** - an interoperability platform providing shared services across government, i.e. integration platform, authentication service, payments platform and SMS Gateway, as well as a set of identification services, i.e. the Citizen Card, the Digital Mobile Key and the ID.gov app.

Figure 5

Initiatives under the Portuguese digital transformation strategy

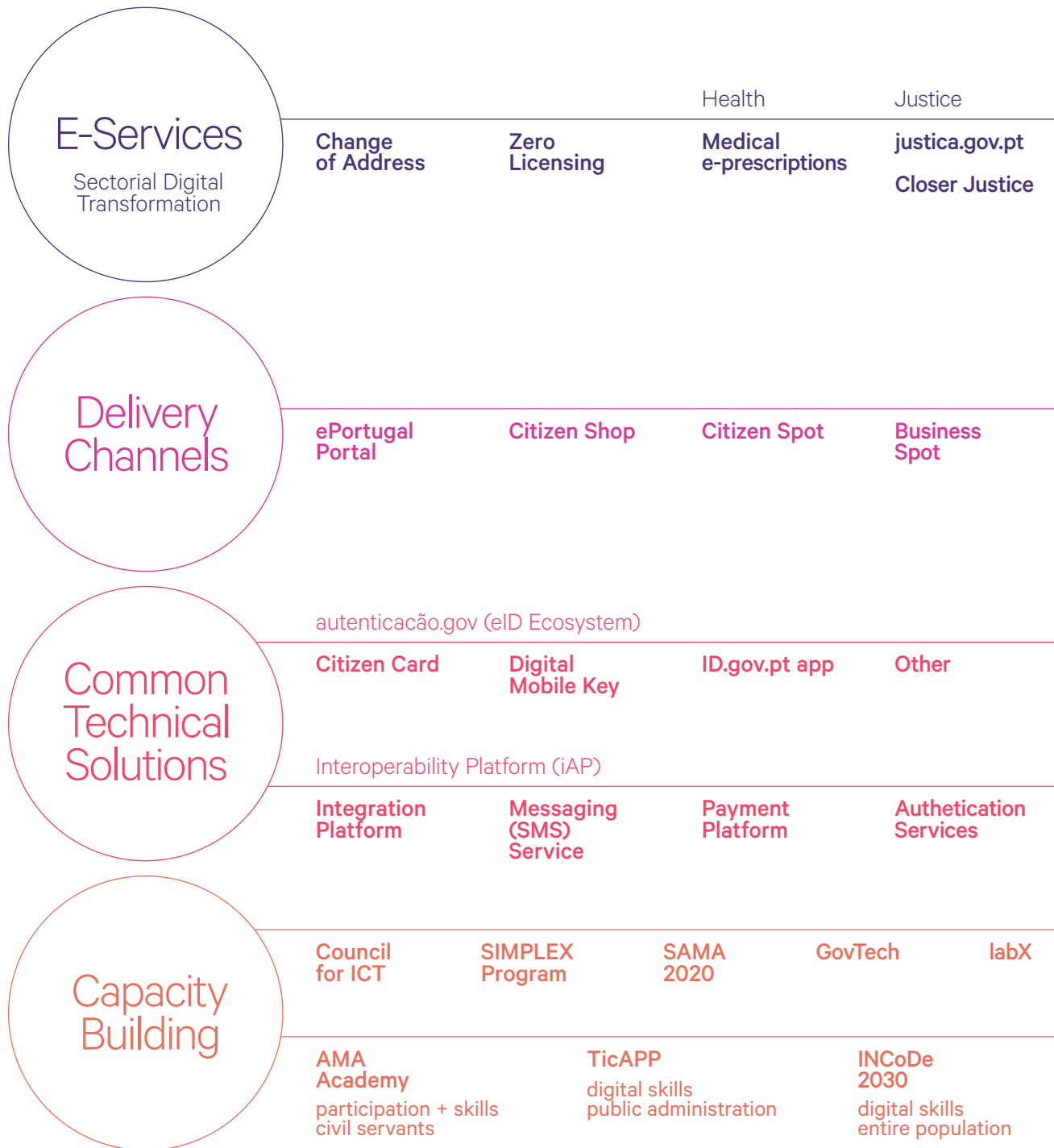
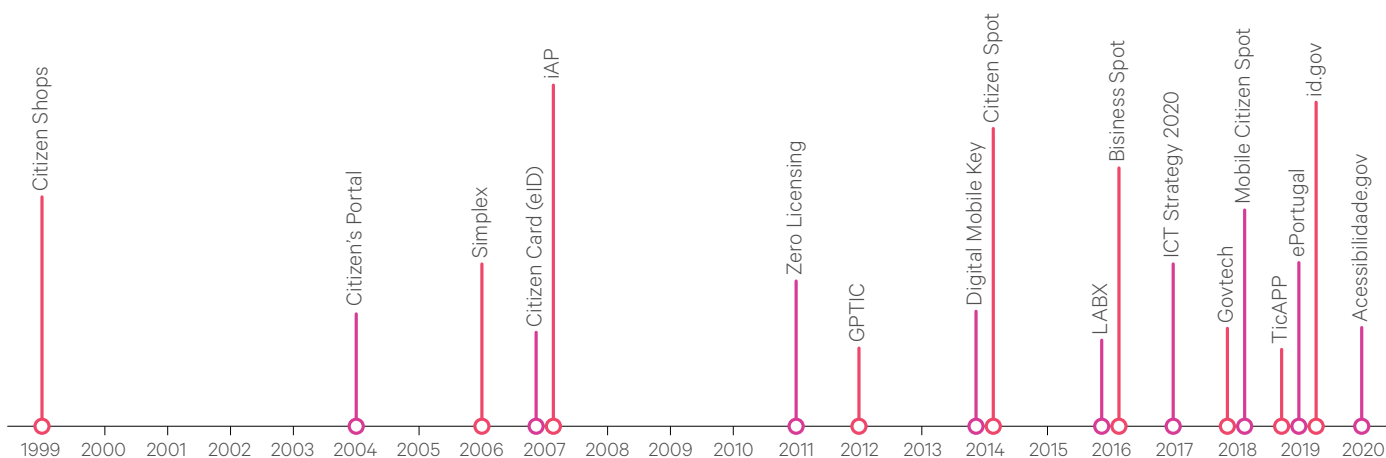


Figure 6
Timeline of main initiatives



The strategic initiatives also include: d) **building institutional capacity** – including the Council for Information and Communication Technologies, a framework for institutionalizing participation in the identification of opportunities and challenges requiring administrative simplification (SIMPLEX Program), a support system for digital transformation in the public administration (SAMA2020), the GovTech challenge and a laboratory for experimenting, testing and innovating in public service delivery (LabX); as well as e) **building human capacity** - including developing technical skills in civil servants (AMA Academy), and building digital skills in the public administration (TicAPP), and the entire society (INCoDe 2030). In addition, the whole-of-government strategy is complemented and leveraged by f) **sectoral digital transformation strategies**, in critical sectors such as health and justice, with targeted programs (Closer Justice) and services (Justica.gov.pt). Figure 6 shows a timeline of the launching of strategic initiatives.

In the following sections, we analyze the main feature of these strategic initiatives, which are described in further detail in Appendix B.

Change of Address Service

The change of address service is a flagship initiative implemented over a decade ago, that makes use of the national interoperability platform to change one’s address in the Citizen Card and, by extension, in all the public entities’ databases connected to the Citizen’s Card - Tax Authority, Social Security, Health, Registries and Notary and Electoral Census (for voting place purposes). Besides the entities in the Citizen Card, citizens can also choose to communicate the change of address to other public or private entities of their choice such as, for example, the Institute of Employment and Professional Training or utilities companies – and any new entity can join the service, thus extending the range of options available to the citizen.

Through secure authentication with the Citizen Card or the Digital Mobile Key, a person can change online their home address, in a simple and quick manner, without having to contact multiple entities to inform them of that change. The process involves very few steps: the citizen

authenticates on the national public services portal –ePortugal, clicks on the option “change address” and fills only the new address since the remaining data is already pre-filled with the information that the Government holds– exception made in case the change of address is on behalf of a third party (for example, a minor child) where the name and civil identification number of the said third party will have to be indicated.

Citizens may also change their address within Portugal or to a foreign country. When the change is across-borders, the full address must be filled in, but when the address remains in Portugal, filling in the new address is quite seamless, due to a protocol with the national postal office for updated national addresses databases. The citizen only needs to enter the postcode and the system returns all possible addresses, having then only to select the desired one and then specify the door number, floor, etc.

After this step and for security reasons, a confirmation letter is then sent to the new address within about five working days (or more in international cases), which allows the service to be finalised. It is then sufficient to access the citizen card’s functionality management application and confirm the change of address, with the codes received in the letter.

Since the address is an attribute inscribed in the Citizen’s Card chip, there is still the need to take this last step by using a card reader, hence ensuring the new address is registered in the chip. However, with the emergence of the Digital Mobile Key, it’s fundamental to ensure the process can run end-to-end on mobile devices and/or without the need to use a smartcard; to address the issue, a new SIMPLEX measure is currently underway to improve the initiative’s efficiency and user-experience.

Once the change of address on the Citizen’s Card is confirmed, communication to each of the entities involved is sent out, each one then being responsible for making the same change.

Finally, for an even more seamless and user-friendly experience, whenever the new address is in Portuguese territory, users can change it through the ePortugal virtual assistant which guides users in a very intuitive user-friendly way, offering them options step by step and, ultimately, changing the address for the citizen, according to the instructions received. See Appendix B for more details.

Zero Licensing

The Zero Licensing initiative aims at facilitating and making more efficient the process for issuing certain business licenses, through the dematerialization of the administrative procedures. It was legally enacted in 2011, the development process of the technical solution took about 18 months, and it was launched by the end of 2013. The driving principle of the initiative is based on replacing the need for prior reporting with a posteriori control. The design of the initiative followed a co-creation process with civil servants of public entities involved in the service delivery and representatives of business owners. It relied on standardization and shared services as well as on the principle of trust through which the business owner declares that its business fulfills all requirements for starting operations and the public administration trusts that they are fulfilled, authorizing the business to operate and controlling that the requirements are satisfied *a posteriori*.

As an example, opening a beverage and food establishment required seven types of licenses, filling seven forms, visiting three agencies, and submitting 21 documents. The completion time for obtaining the license was uncertain. With the Zero Licensing, the documents were reduced by half, the person applies online through the government portal and the average time for obtaining the licenses is less than 48 minutes (Leitão Marques, 2014). See Appendix B for more details.

Medical e-Prescriptions

This initiative enabled Portugal to have fully digitized medical prescriptions. The motivation was having a centralized database for controlling and reducing the consumption of medicines, sharing data among doctors, as well as serving as a data repository for investigating health-related issues, like relationships between consumption of certain drugs and illnesses. Another goal was the dematerialization of the medical prescriptions, requiring that all doctors register their medicine prescriptions and therefore reducing fraud.

The solution *contributed to reduce the fraud associated with medical prescriptions by 80%*. Since 2019, doctors can issue medical prescriptions using their smartphones and citizens can also access them through mobile devices, using their digital mobile keys. Currently, the initiative is widely used, handing an average of 200 prescriptions per minute. Portuguese e-prescriptions are valid throughout Europe.

The initiative was implemented as part of a sectoral strategy for the health sector. The strategy also includes services like the de-materialization of death certificates and online update of related registries, support to ICT strategies of health institutions including the definition of a reference enterprise architecture, a mobile app providing health-related data and services, and SNS24 - a national health system providing nursing services, assisted by telemedicine available 24 hours 7 days per week. Appendix B presents more details about medical e-prescriptions.

OPEN DATA IN THE NATIONAL HEALTH SERVICES TRANSPARENCY PORTAL

19,944,214
medical e-prescriptions
issued in 2020
(period: 01-01-2020
- 28-05-2020 17:00)

€ 1,873,445
in government expenditures
in medicines in 2020
(28-05-2020 17:00)

(Source: <https://www.sns.gov.pt/transparencia/>)

ePortugal

Since February 2019
(launching date) to
April 2020 the portal had:

9.75 million accesses

2400 services

250,000 registered users

**800,000 sessions
per month (average)**

**2% to 30% user satisfaction
(Feb 2019-Apr 2020)**

Launched in February 2019, the national public services portal is the platform providing the digital single point for accessing all public services. It consolidates all services to citizens¹⁸ and businesses¹⁹, provides a service catalogue²⁰ and a directory of public websites²¹, as well as a directory and an interactive map (Citizen Map)²² for locating all available places for face-to-face access to public services. In addition, it enables links to other government portals, such as the one publishing a registry of mobile apps²³ and the open data portal²⁴. It contains a reserved area, where citizens can access personalized information and services related to their finances and health, through an authentication process. It also provides a single access point for submitting a complaint, suggestion, and/or compliment to the government (the Yellow Book mentioned as part of the initiatives of the SIMPLEX+ Program). The portal development process lasted 18 months.

Applying new technologies, the portal offers a virtual assistance, called Sigma, a chatbot assisting the user to interact with it. AMA invested special efforts on the accessibility and usability features of the portal. As a result, the portal complies with international standards, and links to a dedicated site (Usability portal²⁵) publishing all the documents and standards produced (see more details in Appendix B).

One of the distinguished features of the portal is that services to citizens are classified based on life events. The classification includes categories like: throughout

18 Services to citizens available at the government portal, <https://eportugal.gov.pt/cidadaos>, last visited 2020-05-14.

19 Services to business available at the government portal, <https://eportugal.gov.pt/inicio/espaco-empresa>, last visited 2020-05-14.

20 Service catalogue available at the government portal, <https://eportugal.gov.pt/servicos>, last visited 2020-05-14.

21 Directory of Portuguese public websites, <https://eportugal.gov.pt/diretorio-dos-sitios-publicos>, last visited 2020-05-14.

22 Citizen Map available at the government portal, <https://mapa.eportugal.gov.pt/#/index>, last visited 2020-05-14.

23 Portuguese portal of apps, <https://www.app.gov.pt>, last visited 2020-05-14.

24 Portuguese open data portal, <https://dados.gov.pt/pt/>, last visited 2020-05-14.

25 Usability portal, <https://usabilidade.gov.pt/>, last visited 2020-05-14.

life, house, education, company, family, recreation, birth, death, retirement, health, work, and vehicles.

Citizen Shops and Citizen and Business Spots

Citizen Shops aim at improving citizens' experience when accessing public services and at making the service delivery more efficient. A Citizen Shop²⁶ is a physical space where public entities (also some private entities) deliver services through face-to-face interactions. Some of them work over an extended schedule and others don't. The biggest (and oldest) ones that have the larger working hours, for instance, are open from Monday to Friday (8.30 am to 7.30 pm) and on Saturdays (9.30 am to 3 pm). Since private companies share the space in Citizen Shops, they contribute to the sustainability of the model, covering 33% of their total expenditures. The first one was launched in 1999. Currently as of May 2020, there are 59 Citizen Shops throughout the country.

Two additional channels for service delivery are the Citizen and Business Spots. They were implemented as part of the Bringing Closer Program ("*Programa Aproximar*") which seeks to create a new paradigm of public service networks (OECD, 2015). A Citizen Spot²⁷ is a helpdesk offering access to more than 200 services delivered by the central and local administrations. The helpdesks are mediated by an assistant who provides face-to-face support for citizens to access the services digitally. This hybrid model of service delivery has proven to be effective in encouraging citizens to use digital services (OECD, 2019). The first Citizen Spot was opened in 2014. Currently, there are 710 Citizen Spots, established in places of easy access for citizens, like town halls and post offices. The Business Spot offers a platform designed to help businesses access in an integrated manner the services that central and local governments provide them and thus relies on the close collaboration between local and central administrations. By April 2020, there are 31 Business Spots throughout the country offering face-to-face interactions. See more details in Appendix B.



²⁶ The concept was inspired on a Brazilian experience: to gather in a single space the interfaces with all relevant service suppliers, public and (some) private. They were born in 1999 and readjusted in 2007, with the creation of the *unified desks* (Multi-service Desk, *I Lost My Wallet* Desk, among others).

²⁷ Citizen Spot, <https://www.ama.gov.pt/web/english/citizen-spot>, last visited 2020-05-16.

Citizen Card

The Citizen Card, used since 2007, is the national identity card representing a certificate of citizenship that takes two forms - a physical document that visually identifies the citizen and a digital document (smart card) allowing citizens to electronically identify themselves, and to authenticate and sign in the acts in which their signatures are needed. The role of serving as a digital document is enabled by a chip able of storing encrypted personal data. The card replaces five cards: the previous identity card (known as “Bilhete de Identidade” or BI), the taxpayer card, the social security card, the National Health Service card, and the voter registration card. To reduce the inconvenience for citizens to handle all such separate documents constituted a major motivation for introducing the card. Another motivation was to have a more secure card, relying on new technologies, since the previous BI was easily counterfeited.

The digital Citizen Card serves two main purposes – authentication and signing. Through the authentication service, the card enables citizens to access digital services in a standard and easy way using a web browser, ensuring privacy and security, as well as to control personal data that is shared among public agencies and to approve the exchange of such data. Citizens can digitally sign documents and use professional attributes in the signature using this card (see details in Appendix B).

The Citizen Card authentication mechanism is made available through autenticacao.gov, the national electronic authentication platform, and is recognized by the European Union as compliant

with the Regulation (EU) 910/2014 (eIDAS Regulation) with a “High” Level of Assurance (as published in the OJEU 2019/C 75/04²⁸).

Digital Mobile Key

The digital mobile key is an authentication and signing mechanism that complements the service provided by the Citizen Card. It was launched in 2014. The solution relies on authenticating citizens using their mobile number, their PIN code, and a security code sent by SMS, as well as enabling to digitally sign. It thus provides an enhanced level of security compared with authentication systems relying only on a username and password. The main purpose for its implementation was to provide a simpler solution for citizens, not requiring a smart card reader and relying on mobile phones. It is used by private companies and public entities, such as banks, the telecommunication company, and the electricity company, as well as by some universities. By April 2020, there were 1.3 million subscribers using the digital mobile key (see Appendix B). The Digital Mobile Key is also made available via autenticacao.gov and duly compliant with the Regulation (EU) 910/2014 with a “High” Level of Assurance (as published in the OJEU 2020/C 116/01²⁹).

ID.gov.pt app

Launched in 2019, ID.gov is a mobile application (for iOS and Android) that allows citizens to use their smartphones to view, save and share ID data

28 OJEU 2019/C 75/05, [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XC0228\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XC0228(01)), last visited 11-01-2021.

29 OJEU 2020/ C 116/01, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_2020.116.01.0007.01.ENG&toc=OJ%3AC%3A2020%3A116%3AFULL, last visited 11-01-2021.

obtained in real-time from national base registries. Its activation and use is simple and secure, based on authentication with the Digital Mobile Key.

The digital versions of the personal identification documents, which include the Citizen Card, the Driving License and the Public Employees Health Insurance card (more documents are underway), have the same legal value as the original documents and can be validated: a) through a QR code available on the app; b) by inserting a time-limited numeric code in a reserved area of autenticacao.gov; or c) by downloading a certified PDF. See more details in Appendix B.

INTEROPERABILITY PLATFORM USAGE

2,671,848 authentications
(during Q1 2020) —
25% using Citizen Card,
58% Digital Mobile Key*

1,246,632 authentications
(during Q1 2019) —
43% using Citizen Card,
28% Digital Mobile Key

27,600,000 payments

4,700,000 SMS

*The remaining authentications are done through specific mechanisms, e.g. those used by lawyers.

Interoperability Platform

The interoperability platform (iAP – Interoperability in Public Administration) was launched in 2007. It is a service-oriented platform providing the Portuguese public administration with shared tools. Since its conception, the platform enabled the deployment of the Citizen Card, that makes use of iAP, allowing data sharing between the social security agency, the tax authority, and the civil registry. In addition to support the card, iAP provides common services, like authentication, messaging, payments, and others (AMA, 2011). As such, it provides four core top-level services: Integration Platform, Authentication Provider, Payment Platform, and SMS Gateway.

- The **Integration Platform** provides an integrated and easy-to-use mechanism for delivering horizontal, shared services that constitute key building blocks to enhance the efficiency of administrative processes. In addition, AMA offers the iAP Integration Platform's services to private institutions, like banks and financial companies. Currently, there are 15 private entities from credit institutions and/or financial companies and 11 more private software development companies (for mandatory communication to the Public Contracts Portal using iAP services).
- The **Authentication Provider** allows the authentication of citizens through the use of Citizen Cards or Mobile Digital Keys. The service authorizes citizens to all portals duly accredited and authorized for this purpose. It also enables to access data of citizens' attributes managed by different entities. The exchanged data is given to service customers, upon receiving the citizen's consent.
- The **Payment Platform** allows the provision and integration of multiple payment methods available through different service channels.

Entities adhering to the service can offer payment services through their own websites, apps or other service delivery channels.

- The **SMS Gateway** enables sending and receiving SMS, i.e. short messages through mobile phones, between citizens and public agencies, providing one more channel for government-citizen interactions.

In 2015, the Government regulated the use of the interoperability platform (iAP – Interoperability in Public Administration) as preferential for the exchange of information between public administration services and agencies. The recently revamped iAP portal has a dashboard³⁰ with interesting, real time data on savings (money and time) and environmental sustainability. The dashboard reflects numbers since 2007, when iAP was launched, but naturally those numbers increase exponentially as iAP grows. See more details in Appendix B.

SIMPLEX

Launched in 2006, SIMPLEX is an administrative simplification and modernization program involving all government levels and sectors. A flagship program of the Portuguese Administration, SIMPLEX focuses on improving service delivery and public administration efficiency, reducing administrative burden, enhancing regulations, dematerializing bureaucratic procedures, and adopting new government practices, such as information sharing and interoperability. It follows a citizen-driven approach relying on participation and service co-creation.

The SIMPLEX Program creates several channels, like workshops, website, and social media, to foster participation from social actors, including citizens, civil servants, non-government organizations and private companies. Such participation entails enticing proposals related to public service delivery and government regulations. The collected ideas are prioritized and the ones selected are funded and implemented by the Program. Appendix B provides detailed description of the Program.

IMPACT OF THE SIMPLEX+ PROGRAM

2016 Edition (GSEMA)

13 measures evaluated

- savings of 624 million € per year to companies
- an impact of more than 1 billion euros in the national economy
- reducing 490,000 hours of work in the public administration (about 300 employees)

2017 Edition (E&Y, 2019)

40 measures evaluated

- savings of 82.7 million € per year to companies
- an impact* of 170.1 million euros per year to the national economy
- reducing 560,000 hours of work in the public administration (about 343 employees)

(*) The impact reported in the assessment of the 2017 edition is calculated as the annual gross savings of public expenses plus the estimated savings of beneficiaries minus the implementation costs

30 iAP dashboard, <https://www.iap.gov.pt/web/iap/iAP-em-numeros>, last visited 11-01-2021.

9

SAMA2020

The Support System for digital transformation of the Public Administration, known as SAMA2020, is the system to support digital transformation initiatives in the public administration. It was launched in 2014 aiming to last until 2020; however, the project execution may be extended until 2023. Its aim is to support “the operations that help achieve the thematic goals and investment priorities concerning the improvement of access to ICT, strengthen the institutional capacity of public entities and stakeholders and enhance the efficiency of the public administration” (AMA, 2020). Based on a partnership agreement between Portugal and

the European Commission, SAMA2020 provides a funding mechanism for implementing digital transformation projects. It relies on European structural and investments funds, namely the European Regional Development Funds (ERDF) – promoting balanced development across Europe and funding government projects related to software and infrastructure development, and the European Social Funds (ESF) - supporting government projects related to employment throughout Europe and investing in Europe’s human capital³¹. The budget for SAMA2020 is 362 million euros for the period 2014-2020. AMA is the management authority of the initiative, responsible for the evaluation of proposals, their technical and financial monitoring, and the closure of projects (see more details in Appendix B).

	ERDF (funds for development project)	ESF (funds for projects related to employment and human capital)
Number of approved projects	281	248
Allocation SAMA2020 (million euros)	95	200.41
Funds committed (million euros)	169.1	217.9
Funds approved (million euros)	139.1	137.9
Implemented (funds in million euros)	36	39.1
Commitment rate (committed/allocated)	178%	109%
Execution*, % compared to approved	26%	28%
Execution*, % compared to allocated	38%	20%

(*) The seemingly low execution rate is because of the month of the year in which the data was taken (first quarter).

31 European Structural and Investment Funds, https://ec.europa.eu/info/funding-tenders/funding-opportunities/funding-programmes/overview-funding-programmes/european-structural-and-investment-funds_en, last visited 2020-05-20.

“We want to infect the public administration with the true way to innovate”

A statement made by a LabX Staff to Revista Diagrama, Dec 2019

“A good portfolio of projects are those that combine short term wins, which create demonstrative value, and far-reaching initiatives that introduce disruptive or structural changes”

Bruno Monteiro, Head of LabX, Feb 2020

LabX

LabX (LABX, 2016) is the government’s laboratory for experimenting innovation in the public sector. It was created in 2017, as an organizational unit of AMA, as an incubator for testing innovative projects for the public administration proposed by public entities and citizens or companies. It experiments new services and approaches for improving service delivery and administrative procedures, adopting a co-creation methodology that involves primarily citizens, but also partners from the innovation ecosystem (research & development centers, community of entrepreneurs, civil society organizations, and other actors). It has a multidisciplinary team, including service designers, social scientists, and public servants. Appendix B explains the vision of the LabX, its guiding principles and the methodologies it applies, and provides details about example projects.

AMA Academy

The AMA Academy was launched in 2019, after six months of development. Its mandate is to encourage new forms of participation of employees, to promote their achievements, and to develop digital skills and new abilities. It seeks to give all employees the opportunity to share, participate and collaborate on the development of knowledge and skills, betting on new areas and training methodologies. It conducts different types of training based on face-to-face learning, e-learning, blended-learning, on-the-job training, micro-learning, social learning and self-learning. The Academy is organized based on the concept of learning communities, e.g. related to Citizen Spots and the bereavement space, among others. The areas and models of training are divided in three types – initial training, technical training, and life-long training. Examples include customer service, digital citizenship, personal development, leadership and strategy, and information and communication technologies.

RESULTS OF AMA ACADEMY (Americo, 2020) from January 2008 to July 2019

436,435 hours of teaching
20,451 trainees — 4,711 from AMA, and 15,740 from partners
1,172 training actions

252 courses
Onsite trainings in Mozambique
and Saint Tome and Principe

TicAPP

TicAPP (ticapp, 2019) is a government center created in 2019 for building digital skills and competencies in the public administration. Its mission is “to support different government areas in the process of digital transformation, developing projects across the public sector, and improving, simultaneously, the contracting of ICT external

services, with corresponding gains in efficiency and effectiveness”. The driving motivation for its creation was to contribute to the implementation of the 2020 ICT Strategy. TicAPP manages a group of experts working with AMA, who are temporarily assigned to projects from agencies who lack the capacity for implementing those specific projects. Experts are grouped in three areas: digital architectures, digital transformation, and advanced data analytics.

TicAPP results



INCoDe 2030

INCoDe (INCoDe, 2020) aims at developing digital skills for the entire Portuguese society. It is an inter-ministerial program that brings together the areas of Administrative Modernization, Science, Technology and Higher Education, Education, Planning and Infrastructure, Labor and Economy, that was officially announced in March 2017 and formally launched one year later. It has five main action lines – Inclusion, Education, Qualifications, Specialization and Research. Inclusion comprises activities targeting groups of people, known as Creative Communities for Digital Inclusion (CCID), who have no basic digital skills³². Education has intervention in educational programs including all levels until higher education. Qualifications includes activities designed for the Portuguese

workforce. Specialization is targeted to higher education programs, in particular for courses on the Science, Technology, Engineering and Mathematics (STEM) related areas. Research aims at promoting higher level competencies in research related to digital technologies and also at supporting the development of specialized digital strategies. Appendix B presents more details about the five areas.

The Program has no budget for implementing activities but specialized staff to support their development. For conducting the activities, they need to mobilize funding. The innovative features of the program are its broad scope of building digital skills for all and the fact that it involves many government areas that in other countries are divided across different ministries.

SOME INCoDe.2030 RESULTS (INCoDe.2030, 2020)

Period: March 2017 – April 2020

Inclusion	Education
<ul style="list-style-type: none">– 10 CCDIs– 5 action plans– 1000 beneficiaries 40 mentors– 20 mentors with certified training	<ul style="list-style-type: none">– 3296 teachers trained– 191 programming and robotics clubs with 10,993 students
Qualifications	Specialization
<ul style="list-style-type: none">– 14 Academies – 160 proposals, 46 approved– 19 training events, 1297 participants– 1033 persons trained in digital competencies	<ul style="list-style-type: none">– 5874 graduates in Licenciatura (2017/18)– 2304 Master level graduates (2017/18)– 1704 Tecnicos Superiores graduates (2017/18)
Research	
Research on Data Science and Artificial Intelligence: <ul style="list-style-type: none">– In 2018 – 49 submitted projects, 15 funded, 4 million €– In 2019 – 69 submitted projects, 13 funded, 3.5 million €	

³² Basic digital skills refer to the Information and Data Level of the DigComp – Digital Competence Framework for Citizens, developed by the European Union, available at <https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework>, last visited 2020-05-18.

GOVTECH RESULTS

2018 Edition	2019 Edition
113 projects	54 projects
1,744 investors	3,149 investors
1,532 wallets	2,378 wallets
4,559,312 GovTechs invested	2,240,000 GovTechs invested

GovTech

Govtech (AMA-govtech, 2018) is a public challenge program for entrepreneurs and citizens, aiming at supporting innovative products and services created by startups that address one or more of the United Nations' 17 Sustainable Development Goals (SDGs). The initiative leverages Portugal's dynamic start-up ecosystem.

Launched in 2018, the program conducted two editions. Once the edition is open, entrepreneurs submit their prototypes online and citizens vote for the best ideas. The system relies on a kind of virtual currency called GovTech. Upon registration, participants become investors and earn GovTechs, representing virtual voting units that can be used to "invest" in projects. Investors can earn more GovTechs by sharing the links of the platform and by attracting other persons to register in the platform. Registered users who would like to vote use a wallet. There is a panel of government experts, who also have GovTechs and vote on the proposals. The GovTech acts as a cryptocurrency, implemented through blockchain technology, which is used to support the initiative. Appendix B explains the obtained results.

Sectoral Digital Transformation – Justice Portal

In 2017, the Ministry of Justice launched an integrated portal³³ offering valuable information concerning legal aspects related to a wide range of judicial services. Judicial services are classified into seven categories – civil, nationality, identification, buildings, commerce, vehicles, and industrial property. Relevant information related to such services is provided in a standard and clear way. One notable feature of the portal is that its content is written in "plain Portuguese", using simple words without legal jargon that can be easily understood by users. The portal has also a section related to transparency, where data is made public regarding the work of courts, such as the status judicial proceedings (entered, finished and pending), among many others. Appendix B provides more details.

³³ Government portal of the Ministry of Justice, <https://justica.gov.pt/>. The platform represents a watershed moment in how the citizen and companies, and their agents, interact with the various services in the justice sector

Sectoral Digital Transformation - Closer Justice Program

The new Closer Justice Plan 2020-2023 (Ministry of Justice, 2020) builds upon the previous plan for the period 2016-2019. The plan has four pillars – Efficiency, Innovation, Proximity, and Humanization, and includes 140 measures.

The Justice Modernization Funds provides the financial resources for the implementation of the program, dedicating about 5 million euros per year (see Appendix B).

Since its inception, its main feature was its dynamic and experimental nature, recognizing the complexity of the matters to be solved and the limitation of being able to identify all initiatives and solutions to be implemented from the very beginning. The underlying principles of the plan are the focus on citizen's needs, a methodology for solving complex problems, a monitoring system updated monthly and the publication of results in open and reusable format, its openness to new proposals, the adoption of digital-by-default and the only-once principles, and the promotion of interoperability and the reuse of existing solutions.

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This section highlights two types of lessons learnt, those drawn from the Portuguese experience and those expressed by the reformers who led the digital transformation strategy.

Lessons Learnt

The experience of Portugal in pushing through its digital transformation highlights a number of key success factors, which include the following:

- **Pursuing citizen-driven efforts and promoting broad stakeholder participation** – The SIMPLEX Program proved to serve as a valuable source for out-of-the-box ideas driving the transformation of public services and bureaucratic procedures. The Program is strongly grounded on participation principles and practices, acting as a sort of crowdsourcing mechanism, enabling participation from citizens, civil servants, and other stakeholders through multiple channels. Such a participatory approach contributes to tailor the transformation efforts based on stakeholders’ needs, ensuring that reforms respond to users’ needs and expectations.
- **Establishing and empowering a central coordination agency** – The implementation of the strategy shows the relevance of having solid foundations grounded on common technical solutions (such as the digital identity and interoperability platform). It underscores the centrality of effective coordination and alignment of efforts across government through whole-of-government approaches connecting the national and local levels of government. It also highlights the importance of dedicated funds to facilitate the implementation in specific areas, addressing the lack of digital capacities in

individual agencies. All such elements, enshrined within AMA, highlight the critical role of a central coordination agency empowered with qualified staff and financial resources.

- **Institutionalizing a governance model** – As explained in Section 4, the need for a common strategy was the main driver for institutionalizing a governance model. The governance model needs to ensure representation of all government areas and include multi-sectoral stakeholders through a network of focal points with representatives from all ministries that meets regularly and facilitates interagency coordination. The institutionalization of the governance model must ensure the consistency and sustainability of efforts beyond electoral cycles and changes of political authorities.
- **Ensuring political support from the government highest-level authority** – A national strategy involving all government areas requires strong political support from the very center of government to get the political backing to push through difficult reforms, the human and financial resources to implement them to push and achieve efficient coordination between different entities each with their legacy systems and enshrined power. In Portugal, the CTIC, responding directly to the Prime Minister through the Minister for the State Modernization and Public Administration, has been critical to cement this political support.
- **Building different types of capacities** – The implementation of the strategy as well as the adoption by the society of its results require different types of capacities and a multipronged strategy at building the demand and supply of digital solutions. A digital transformation strategy needs to include measures to build such capacities, by strengthening digital skills within the public sector, building organizational capacities for adopting new methodologies and changing

organizational culture, and promoting the adoption of digital tools within the population.

- **Designing services for citizens based on life events** – Instead of defining services one by one according to the mission of each public agency, a set of services designed based on life events (e.g. birth, health, education, etc.) contributes to increasing the delivery of public value through services and citizens realize the true impact that the initiatives have in their daily lives.
- **Adopting new methodologies for service design** – AMA experiences show the added value of adopting new methodologies for designing public services, based on co-creation among stakeholders, particularly, the end users, and designing solutions based on iterations that allow to experiment before scaling, assess results, and adapt changes, if needed.
- **Listening to ideas of public servants for improving services and processes** – The Portuguese experience underscore the need to involve civil servants in the reform of the services they provide. Public servants are the ones who provide the services, listen to complaints of service users, and know the details of business processes. They are very much aware of the challenges that the public administration faces and the expectations of end users. As such, they have first-hand knowledge and are a valuable source of ideas.
- **Defining communication strategies** – A valuable lesson from SIMPLEX is the importance of defining a communication and marketing strategy. Communication is fundamental to reach all relevant targets and should be pursued through multiple channels, including social media and traditional means like radio and television. In addition, specific merchandising tactics, similar to marketing strategies of private sector companies, serve to raise awareness of the program initiatives.

— **Complementing and strengthening the national strategy with sectoral strategies**

– In Portugal, two critical sectors, directly impacting the quality of life of people and enabling scenarios for public-private sector collaboration – health and justice – have embraced reform that have introduced radical changes in their services and operations. Both have designed sector-specific strategies leveraging the enablers facilitated by the national strategy. These two sectors have two distinguished features. Health has a special institution responsible for the use of technology across the whole sector. Justice, in addition to the judiciary matters, has the responsibility to maintain the state base registries, like the civil registry. Thus, it played a crucial part along with AMA implementing the Citizen Card, and both Justice and Health provide access to main registries by ensuring interoperability with other government agencies. In summary, a national strategy is needed, but alone is not sufficient.

— **Role of vision and political will complemented with commitment to digital transformation**

– It is noteworthy that Portugal has invested quite actively in the digital transformation of its justice sector (OECD, 2020). One possible reason is that the working team have been working together since 2015. Two leadership features are highlighted. On the one hand, the leader's vision and strong will to deeply transform the sector. On the other hand, counting with an experienced expert, profoundly involved in digital government and innovation in Portugal, who had no experience in a specific government area, and thus, no commitment with previous status quo.

— **Role of a supranational entity, like the European Union, as a driving force** – The implementation of some critical initiatives, like those related to digital-by-default and tell-once-only principles, were driven by the European Union. Such a

supranational entity serves a key role in the promotion of good practices, in facilitating access to resources for adopting such practices, and in raising awareness of governments in the need for innovation and progress in the strategic use of digital technologies.

In addition to the above, the Portuguese experience contains a number of critical lessons from the testimonies given by four women leaders who have been instrumental in pursuing the country's digital transformation – Maria de Fátima Fonseca, Secretary of State of Innovation and Administrative Modernization (since October 2017 up to date); Anabela Pedroso, Secretary of State of Justice (since November 2015 up to date); Sara Carrasqueiro, Board Member of AMA (since March 2018 up to date), and Maria Manuel Leitão Marques, former Secretary of State of Administrative Modernization (2007-2011), Minister of Presidency and Administrative Modernization (2015-2019), also responsible for citizenship and gender equality.

— **Digital transformation is an opportunity and powerful tool to boost innovation and modernization.**

A public administration modernization strategy needs to catalyze the capacity for innovation in the public sector. It means that actions should ensure that the organizational culture integrates innovation and contributes to a broader ecosystem of public innovation (Maria de Fátima Fonseca)

— **The digital transformation of the public administration should leverage change processes adopted by an increasingly digital society.**

In other words, fostering the demand for digital transformation is critical. It should target improvements in the quality of life of people, ensuring proximity to people and to territories, so that decisions are made at the closest level to end users and policies tailored to the various realities of the country (Maria de Fátima Fonseca).

- **Digital transformation is not about a “providential” or “one-shot” reform, but a process of continuous improvement and collaborative transformation made of concrete actions embraced by both the central government and public agencies.**

Such actions should guaranty the capacity of public agencies to permanently adapt to respond and anticipate to evolving challenges (Maria de Fátima Fonseca).

- **Public administration must conceive innovation as one of its core and intrinsic capability requiring continuous adjustment, so that innovation helps delivering increasing value through services offered by public agencies.**

Four main requirements for public sector innovation are: 1) a culture of continuous monitoring of needs and expectations of citizens and businesses – and involve them, 2) constant adoption of new technologies and new management models, 3) unremitting support to new knowledge and policy insights, and 4) proactive attitude that constantly challenges the status quo and innovates in service design (Sara Carrasqueiro).

- **Four critical success factors** for digital transformation are: 1) to build on previous results and to ensure the continuity of efforts, 2) to establish from the beginning the governance model, 3) to collaborate with countries for sharing knowledge and learning from others, and 4) to ensure the availability of financial instruments providing the needed resources (Sara Carrasqueiro).

- As such, public administration modernization strategies focusing on delivering better services necessarily must **combine issues related to four dimensions** - people, management, technology and proximity. By combining these four dimensions, it is possible to promote the public good by balancing the demanding equilibrium between needs, resources and responses (Maria de Fátima Fonseca).

- **Digital transformations impacting on service design or improvements of public services are facilitated through an iterative methodology**, which includes successive refinement cycles benefiting from the feedback from all the actors involved in the delivery chain and in particular the ultimate beneficiaries (Sara Carrasqueiro).

- **Digitalization of public services is not enough.** It also runs the risks of creating a digital bureaucracy. Digital transformation is about streamlining and simplifying procedures, cutting red tape, making services centered on its users, integrating them in central life events, breaking silos between different public entities, and promoting interoperability by default (Maria Manuel Leitão Marques).

- **A milestone in public service delivery was achieved with the creation of the Citizen Shops.** We were inspired on a service delivered by the State of Bahia in Brazil, and based on it, we thought about introducing a different concept in service delivery that ceased with the traditional idea of a high balcony with a civil servant who is on one side and the citizen on the other side. It is here that the idea of thinking something different appeared (Anabela Pedroso).
- **We always considered technology and people together, since, in Portugal, persons were who facilitated the paradigm change to digital.** Digital transformation was a process that started with the first e-Government plan defined in 2003. At that time, we implemented projects that had significant impact, like the first citizen portal. Since then, all changes came up in sequence. Therefore, there is a history of about 20 years of digital transformation in Portugal (Anabela Pedroso).

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Women Leaders in the Digital Transformation of Portugal

Through several years, the digital transformation in Portugal has been led by women; as mentioned above, Maria de Fátima Fonseca, Maria Manuel Leitão Marques, and Anabela Pedroso have led important changes. They partly reflect the fact that the Portuguese public administration has a 60.7% female employment rate, and currently, 48% of government leaders are women.

Lessons learnt from their experience as women leading the digital transformation of government, with a gender perspective, include the following.

From **Maria de Fátima Fonseca**:

“Digital transformation is much more than technology, a ‘traditional male business’. It is about leadership, a different mind-set, collaborative work, and partnership”. It requires a strategy involving and “uniting all government areas, all ministries, which joins, as pieces of the same puzzle, a focus on valuing the workers, on new management models, on technology as a tool and a driver of change, and on proximity to citizens. This is a broad view of the way we must follow to become more digital, an inclusive and humanistic path”.

“Although, some may say this is a woman’s view. I say this is a responsible way of enabling social change, to contribute to promoting better working conditions, to simplify work in public institutions, to provide better services and to make people’s life easier”.

“Traditionally, women are supposed to be more focused on social issues, and this is an important advantage when we have the responsibility to design and implement a transformation strategy. Men are usually more focused on the tools, women focus on the social system as a whole”.

“This is an asset, although it can be seen as an obstacle, when everybody talks mainly about the tools.”

“However, there is a need to recognize that communication is a big challenge. So, this is an area in which men and women are joined and engaged in a common vision and coordinated action”.

From **Maria Manuel Leitão Marques**:

“Some initiatives were more innovative or depended more on collaboration. This was a critical aspect because as a minister, I needed to lead and at the same time ‘seduce’ different entities that were not under my supervision to stay on board and work together for a common purpose”.

“The main obstacles related to gender-related attitudes and expectations that I faced while working on the digital transformation strategy were the lack of women with digital skills. The stigma that women are not interested in STEM (Science, Technology, Engineering and Mathematics) is deeply ingrained in our society”.

“More and more, digital is the tool to transform the way we organize our jobs and our lives. The digital transition is a big challenge nowadays for public, social and private sector. This transition, the way it is being designed and implemented, must be managed at all levels, by men and women, because only with the participation of both we can achieve a gender balanced world and a truly modern society and state in the near future”.

From **Anabela Pedroso**:

“Portugal has a group of women, who are de facto those who appear in critical moments, specialized in innovation, and bringing different ways of doing things, which also has to do with pragmatism and the ability to resist obstacles.”

“When women need to work together, two things can happen, or we are able to establish very good relationships or very bad; there are no midterms. In my experience, when there is respect, women working relationships are better, perhaps because it is related with our commitment, capacity and passion for what we do. Such chemistry, achieved between women and men who came together in Portugal, facilitated the transformation.”

“I never encountered obstacles, because I never saw them. However, when an obstacle appeared on my way, I was convinced that my skills, my knowledge, and my capacity will allow me to solve them. When I was young, there were occasions in which I was tested. Then, it was always important to show that it was not a matter of age, it was about knowing and proving that it is possible to do things”.

This section analyses the impact of some of the initiatives implemented as part of the digital transformation strategy in recent years, describing costs and time saved, economic impact, and value of the investments.

Impact

Two studies were conducted to assess the impact of the SIMPLEX+ Program, one considering 13 initiatives of the 2016 edition of the program (GSEMA); and another one focusing on 40 initiatives of the 2017 edition of the program (E&Y, 2019). Using the results of such studies, Table 11 shows the impact produced by some of the measures implemented by SIMPLEX+ 2016. The first two columns present the annual savings for the public administration in terms of costs (in euros) and time (hours), calculated according to the Standard Cost Model (SCM) methodology adopted by the OECD. The next column indicates the economic impact measured in Gross Value Added (GVA)³⁴, while the last two columns are qualitative assessments of the degree of citizen's satisfaction regarding the effectiveness and performance of the initiative, measured on the scale 0-100.

Table 12 shows similar measures for selected initiatives implemented as part of SIMPLEX+ 2017. In this case, the savings are calculated in terms of annual savings in costs (euros) and time (hours) for both the beneficiaries and the public administration, respectively. It also includes the economic impact measured in GVA and the implementation costs, where available. The measures for citizen's perception regarding effectiveness and performance are measured on a scale of 0-100.

Based on figures shown in Table 12, for those initiatives in which the implementation costs are available, we calculate the value of the investments made in each initiative, with respect to the net savings and the economic

³⁴ The potential GVA is associated with the release of resources related to the fulfilment of the information obligations for the productive activity in the companies (E&Y, 2019).

impact they produce. In Table 13 we calculate the ratio between the total net savings, the implementation costs, and the GVA. For example, it means that per € 1 invested in the Customs Simple Declarations solution, there were € 265.34 of net savings and € 318.80 of economic value produced.

Table 14 summarizes the impact assessment of 40 selected initiatives of the 2017 SIMPLEX+ Program, as documented in a study conducted by an external party (E&Y, 2019).

Table 11

Annual impact produced by measures of the 2016 SIMPLEX+ Program

INITIATIVE	ANNUAL SAVINGS		ECONOMIC IMPACT IN GVA (EUROS)	EFFECTIVENESS (0-100)	PERFORMANCE (0-100)
	COSTS (EUROS)	TIME (HOURS)			
Paying taxes by direct debit	2,863,000	7,145	4,063,000	37	38
Online criminal records	135,000	12,796	191,000	71	73
Online declaration of remunerations for Social Security	259,818,000	424,298	383,447,000	73	73
Opening a restaurant	8,716,000	9,498	15,933,000	71	83

Table 12

Annual impact produced by measures of the 2017 SIMPLEX+ Program

INITIATIVE	BENEFICIARIES			PUBLIC ADMINISTRATION			NET SAVINGS (EUROS)	EFFECTIVENESS (0-100)	PERFORMANCE (0-100)
	ANNUAL SAVINGS		ECONOMIC IMPACT IN GVA (EUROS)	IMPLEMENTATION COSTS (EUROS)	ANNUAL SAVINGS				
	COSTS (EUROS)	TIME (HOURS)			COSTS (EUROS)	TIME (HOURS)			
Mobile Digital Key	4,704,044	297,363	N/A	N/A	131,769	24,985	4,835,812	79	81
Entrepreneurs' Desk	673,737	53,561	1,064,215	N/A	712,302	138,198	1,386,039	31	30
Customs Simple Declarations	11,973,035	802,018	15,935,414	49,986	1,340,283	108,419	13,263,332	75	56
Single Report to Social Services	12,411,337	1,165,011	23,147,761	106,638	3,210	428	12,307,909	52	53
New Pension Simulator	2,482,277	245,981	N/A	20,000	128,539	24,312	2,590,816	73	75
Medical Digital Prescriptions	2,316,849	122,558	2,435,112	N.D.	16,716,322	N/A	2,435,112	67	75
Driving License Fast Track	7,587,194	389,489	N/A	28,600	263,637	49,494	7,822,231	56	64

Table 13

Annual value for investments – Examples from the 2017 SIMPLEX+ Program

INITIATIVE	IMPLEMENTATION COSTS (EUROS)	NET SAVINGS (EUROS)	SAVINGS VALUE (EUROS)	GVA (EUROS)	ECONOMIC IMPACT VALUE (EUROS)
Customs Simple Declarations	49,986	13,263,332	265.34	15,935,414	318.80
Single Report to Social Services: made easier	106,638	12,307,909	115.42	23,147,761	217.07
New pension simulator	20,000	2,590,816	129.54		
Driving License Fast Track	28,600	7,822,231	273.50		

Table 14

Annual impact of 40 measures implemented as part of the 2017 SIMPLEX+ Program

BENEFICIARY	NET SAVINGS (EUROS)	TIME SAVED (HOURS)	GROSS VALUE ADDED (EUROS)
Citizens	€ 66,500,000	8,142,000	
Companies	€ 82,700,000	6,302,000	€ 89,400,000
Public Administration	€ 20,800,000	560,000	
Total Impact	€ 170,100,000	15,003,000	€ 89,400,000

HOW MUCH BENEFITS CAN DIGITAL TRANSFORMATION EFFORTS PRODUCE?

The 40 initiatives of the 2017 SIMPLEX+ Program produced in total:

0.08% of GDP in savings

0.04% of GDP in terms of GVA

0.12% of GDP in terms of total benefits

VALUE FOR MONEY

Each € 1 invested in the Customs Simple Declarations solution contributed to obtaining € 318.80 of economic value per year

Each € 1 invested in the Simple Report to Social Services solution contributed to obtaining € 217.07 of economic value per year.

IMPACT-READINESS FOR COVID-19

“Due to COVID-19 Pandemic, we had to engage in large-scale remote working more than 68,000 public workers in less than two weeks. It was demanding, but we can only respond to extraordinary situations with exceptional measures decided and developed by responsible, qualified, proactive and capable people. Some people say that we were pushed to digital transformation by these days, I say that this is an effect of an improved long-standing strategy that we have been following for the past 20 years”

Maria de Fátima Fonseca,
written interview

This section presents recommendations derived from the analysis of the Portuguese digital transformation strategy and its lessons for Latin American countries.

Recommendations and Lessons

The comprehensive nature of the Portuguese strategy - When defining a digital transformation strategy, Portuguese experience constitutes an inspiring example of a comprehensive set of interventions knitted together in an overall strategy driven from the center of government and with a strong political backing. In particular, the measures include the institutionalization of a governance structure, the provision of innovative services, the adoption of a multi-channel approach for service delivery, the provision of common

technical solutions as shared services across the public administration, the development of whole-of-government standards for usability and accessibility, the adoption and promotion of participatory practices, the creation of a public innovation lab, the expansion of open government and open data, and the building of digital skills and capabilities in government and society.

Appendix A

The approach for developing the strategy –

The Portugal digital transformation strategy is characterized by five main features and guiding principles that are particularly relevant to Latin American countries, focusing on the “how” of its development: 1) the core pillar is citizen-driven by design, based on civic participation (facilitated through the SIMPLEX Program), complemented with supporting measures for building human capacity and promoting innovation, as well as with sectoral action plans; 2) it is strongly focused on administrative simplification, de-bureaucratization and digitalization; 3) it is based on an institutionalized and empowered governance structure; 4) it has adopted new methodologies for service design and implementation; and 5) is backed-up with sufficient resources from a central budget managed by AMA, used to fund agency projects aligned with the national strategy.

Establishing a governance structure -

The Portuguese experience illustrates that the institutionalization of a governance structure is a critical success factor and should be considered upfront. Such a structure should include representatives of all major government entities, report to the center of government, and receive advice from independent experts. At the implementation level, governance should be supported by a network of focal points in each government area. The governance structure contributes to mobilize resources and build support across the whole government and to regularly and frequently monitor the implementation progress.

Empowering the implementation agency - The empowerment of a central digital agency such as AMA responsible for the coordination of the strategy and the provision of the resources needed is key for the successful implementation of a whole-of-government digital transformation strategy. Such empowerment is given through the delegation of authority for defining and coordinating actions across all government areas, the availability of qualified staff and the provision of financial resources.

Providing common technical solutions – To facilitate the implementation of the strategy and the delivery of integrated services, the provision of common technical solutions to be used by public entities, like digital identification, the interoperability platform, common vocabularies, and others, is key. Data management and secure flow across public administration is key to digital transformation and enabled by such solutions.

Strategic initiatives - Portugal provides many valuable initiatives, easily replicable, that could be considered by Latin American countries, for example:

- CTIC – an organizational structure dedicated to elaborate and monitor the strategy for the use of Information and Communication Technologies (ICT) in the Public Administration.
- SIMPLEX – provides a framework to foster public consultation in identifying out-of-the-box ideas for simplifying, de-bureaucratizing, de-materializing, and modernizing public administration.
- Citizen Shops, Citizen Spots, and Business Spots – the creation of one-stop physical access to public services with extended working hours helps build closer relationships between government and citizens. The idea of the Citizen Spots having a double computer to provide assisted access to digital service helps raise awareness and build citizen’s capacity and trust in digital services.

- LabX – creating a safe space for incubating innovation in the public sector has proven particularly useful, working with agencies across government, facilitating the adoption of new methodologies for service design, and contributing to developing the culture of innovation in the public sector.
- GovTech – represents an innovative mechanism to promote innovation among entrepreneurs, raise awareness about new technologies, and provide an incubation mechanism for startups providing tech-based and data-driven solutions to public challenges.
- TicAPP – a center dedicated to build digital competences in the public sector is a critical part of the strategy to enhance digital skills.
- INCoDe.2030 – as an integral program for building digital competencies of the entire society is particularly relevant for Latin American as a mechanism to foster adoption of digital tool.
- AMA Academy – a learning academy based on innovative training methodologies, using engaging online tools, which facilitate formal and informal learning, in an integrated way and through skills development solutions based on sharing experiences, on the know-how of participants and on tailored learning paths, strategies that can be easily adopted by other organizations and countries.

Mobilizing external funds - having an external source of additional resources for implementing projects aligned with the national strategy, like those provided by the EU in the case of Portugal, facilitates the implementation of ICT projects. Such mechanisms can also constitute an added motivation for introducing the culture of performance measurement and monitoring.

Defining principles underpinning service delivery - The Portuguese strategy defines very clear principles for prioritizing and designing new services, mainly related to making the public administration closer to citizens' needs. Services should be more accessible, inclusive, offering a set of services related to life events and delivered as a single service through simple interactions with the public administration.

Understanding administrative modernization as an opportunity in times of crisis – The Portuguese experiences illustrates how embracing administrative modernization efforts at the time of financial crisis is a major opportunity for improving public administration efficiency. For example, the 40 measures implemented by the 2017 SIMPLEX+ Program generated a public benefit of 0.12% of GDP.

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The main legal and regulatory instruments supporting digital transformation efforts in Portugal are enumerated below following the five areas presented in Section 6 – Administrative modernization and simplification, digitalization processes, data protection, cybersecurity, and public participation.

Legal and Regulatory Instruments

Administrative Modernization and Simplification

— *Decree-Law 135/99* – determines the need for administrative modernization. It has been updated by *Decree 73/2014*, which establishes deeper modernization measures including the implementation of the “once-only” principle,

according to which a citizen should not be required to present the same document to the public administration more than once.

— *Decree-Law 48/2011* – defines a significant reduction in the types of licenses required. It is extended by *Decree 10/2015* which dictates the practice with respect to food and beverage establishments and also commerce- and

service-related establishments. Likewise, Decree Law 169/2012 regulated the practice of industrial activity, but it was revoked by *Decree Law 73/2015*.

- *Decree-Law 4/2015*³⁵ – it is the Code of Administrative Procedure and includes articles defining the principles of an open and digital administration, data security, data protection and data collection by public institutions. In particular, its Article 14 defines the principle of electronic administration and advocates that the public administration uses electronic solutions to promote efficiency, transparency and proximity with all interested parties.

Digitalization Processes

- *Decree-Law 290-D/99* – establishes the legal recognition of the digital signature. Revised by Decree-Law 63/2003 and 165/2004 and *Regulatory Decree 25/2004*).
- *Law 7/2007* – creates the Citizen Card and regulates its issuance, replacement, use and cancellation. It also describes the provisions for an electronic document that uses a digital signature. The *Law 32/2017* introduces significant changes in the Citizen Card, in particular the integration of the Professional Attribute Certification System, which allows the use of the national electronic identification card to digitally sign as a citizen and also as a professional.
- *Law 36/2011* – establishes the use of open standards in information systems used by public administrations.

- *Resolution 91/2012 of the Council of Ministers* – establishes the National Digital Interoperability Regulation including interoperability standards to be adopted by the information systems of the public entities. It was later revised by the *Resolution 2/2018 of the Council of Ministers*
- *Law 37/2014* – establishes the digital mobile key as an alternative and voluntary system of authentication of citizens in portals and websites of the Public Administration.
- *Decree-Law 74/2014* – regulates the digital by default provision of public services. It is complemented by *Decree Law 105/2017* that ensures assistance to operate digitally so that people who cannot, do not want or do not know how to use digital tools, can benefit from the support and guidance of a public servant or a digital mediator.
- *Resolution 42/2015 of the Council of Ministers*³⁶ – determines the preferred adoption of the Public Administration Interoperability Platform (iAP) in the exchange of information between public administration services and agencies, and approves the usage regime and iAP service levels.
- *Decree-Law 93/2017* – creates the unique digital address and establishes the electronic notifications public service associated with such address.
- *Decree-Law 83/2018* – regulates the accessibility of websites and mobile applications of public entities, in accordance with the *Directive 2016/2102* of the European Union.

³⁵ Decree Law 4/2015, <https://dre.pt/web/guest/legislacao-consolidada/-/lc/105602322/view?q=C%C3%B3digo+de+procedimento+administrati0076>

³⁶ Resolution 42/2015, https://dre.pt/home/-/dre/67540636/details/maximized?p_auth=7PgkXEza

Data Protection

- *Portuguese Constitution (Article 268 N° 2)*³⁷ – passed in 1976, establishes the fundamental right of access to archives and administrative records, except information related to state security, criminal investigation and personal privacy.
- *Law 41/2004* – ensures the protection and privacy of personal data, following guidelines of European Union Directive 2002/58.
- *Law 26/2016* – provides regulated access to administrative and environmental data and reuse of administrative documents, following the guidelines of the European Union Directive 2003/4 on public access to environmental information and Directive 2003/98 on the use of information in the public sector.
- *Portuguese enforcement of the GDPR* – the General Data Protection Regulation (GDPR) of the European Union (Regulation EU 2016/679³⁸), is in force in Portugal since May 2018. In particular, it regulates the processing by a person, a company or an organization, including public entities, of personal data related to individuals in the European Union.
- *Law 71/2018* – ensures the portability of personal data of compliance with the General Data Protection Regulation (GDPR) of the European Union.

37 Portuguese Constitution, <https://dre.pt/constitution-of-the-portuguese-republic>.

38 EU Regulation 2016/679, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=PT>.

39 Decree Law 69/2014, <https://dre.pt/pesquisa/-/search/25343754/details/maximized>.

40 Law of National Assembly, https://www.parlamento.pt/legislacao/documents/legislacao_anotada/regimentoar_simples.pdf.

41 Resolution 95A/2015 of the Council of Ministers, <https://dre.pt/application/conteudo/72909766>.

Cybersecurity

- *Decree 69/2014*³⁹ - defines the terms of operation of the National Cybersecurity Center (CNCS) whose mission is to help Portugal use the cyberspace in a free, reliable and safe way.
- *Decree-Law 46/2018* – establishes the legal framework for cybersecurity in compliance with Directive 2016/1148 of the European Parliament on measures to ensure a common level of network security and information throughout the European Union.

Public Participation

- *Law of National Assembly*⁴⁰ and *Resolution 95A/2015 of the Council of Ministers*⁴¹ – define that all changes in legislation and policies in Portugal must be submitted to a public consultation process, in which each citizen can provide contributions. In addition, the Law determines that some areas have mandatory specialized consultations.

Description of the Initiatives

Change of Address Service

Whenever citizens changed their home address, they had to communicate their new address to several entities, from public entities like the Tax Authority and the Social Security, to private entities like utilities.

Although the online procedure was available since the early 2000s, the hassle of going through numerous interactions, often with different steps depending on the entity, was only overcome with the deployment of the Citizen Card (and, of course, the interoperability platform, in which the Card runs).

AMA in collaboration with the Registries and Notary Institute, developed the improved online change of address mechanism, ensuring both that the service is processed technologically in a seamless manner and that the quality of the user-experience component is taken into account – and, more importantly, that the Public Administration makes use of the data already in its possession and by using the interoperability platform, spares citizens needless interactions with the Government.

The change of address service allows any Portuguese citizen, through secure authentication with the Citizen Card or Digital Mobile Key, to change their address simultaneously in several entities, very easily and in just a few steps.

The new address is automatically registered in all the public entities' databases on the Citizen's Card - Tax Authority, Social Security, Health, Registries and Notary and Electoral Census (for voting place purposes) and, additionally, citizens can communicate the change of address on the Citizen's Card to other public and private entities of their choice such as, for example, the Institute of Employment and Professional Training or utilities companies.

Zero Licensing

The Zero Licensing initiative is part of the SIMPLEX Program related to the administrative and regulatory simplification efforts conducted to increase Portugal competitiveness. The official name of the initiative is the Legal Regime for the Access and Exercise of Activities of Trade, Services and Catering (RJACSR) (Presidência

do Conselho de Ministros, 2011) and its scope is simplifying the processes for opening, modifying and closing food and beverage establishments, trade in goods, and providing storage of goods services (AMA, 2016).

Given that the local authorities are the ones having competencies for licensing businesses and collecting related taxes, the implementation of the initiative requires strong collaboration and coordination between the central administration and local governments.

Medical e-Prescriptions

The initiative contributed to fully dematerialize all medical prescriptions issued in Portugal. The main challenge for its implementation was to ensure the same data semantics, and that at the national level, all records are codified according to the same standards. The challenge was successfully overcome and the responsibility for unifying clinic and non-clinic catalogues used in the health system relies on the Clinical Terminology Center⁴². The standardization on data semantics is applied by 54 hospitals and 365 health centers in Portugal.

After the initiative was implemented, another major challenge was the resistance of medical doctors to use the system. To overcome it, they promote continuous training for doctors. Another challenge refers to the technologic obsolescence of some health service providers, which makes the processes slow. To holistically address these and other challenges, as well as to consolidate and leverage on the achievements,

42 CTC, Centro de Terminologias Clínicas, <https://www.ctc.min-saude.pt/>, last visited 2020-05-03.

they defined the National Strategy for the Health Information Ecosystem⁴³. The strategy specifies goals and measures to consider in the strategic plans of health institutions, so to facilitate changes in the way ICT tools are used. This is an example of sectoral digital transformation.

Assessing its impact, it contributed to build capacity to further deliver public value on the health sector. The centralized database used

by the system, called “Registo Nacional de Utente”, containing medical prescriptions was extended to include other medical services. Currently, it contributes to increase transparency in health services; for example, the daily public expenditures in medicines is openly published at the transparency portal⁴⁴, as shown in Figure 7, together with many other data sets and visualization tools available at the portal.

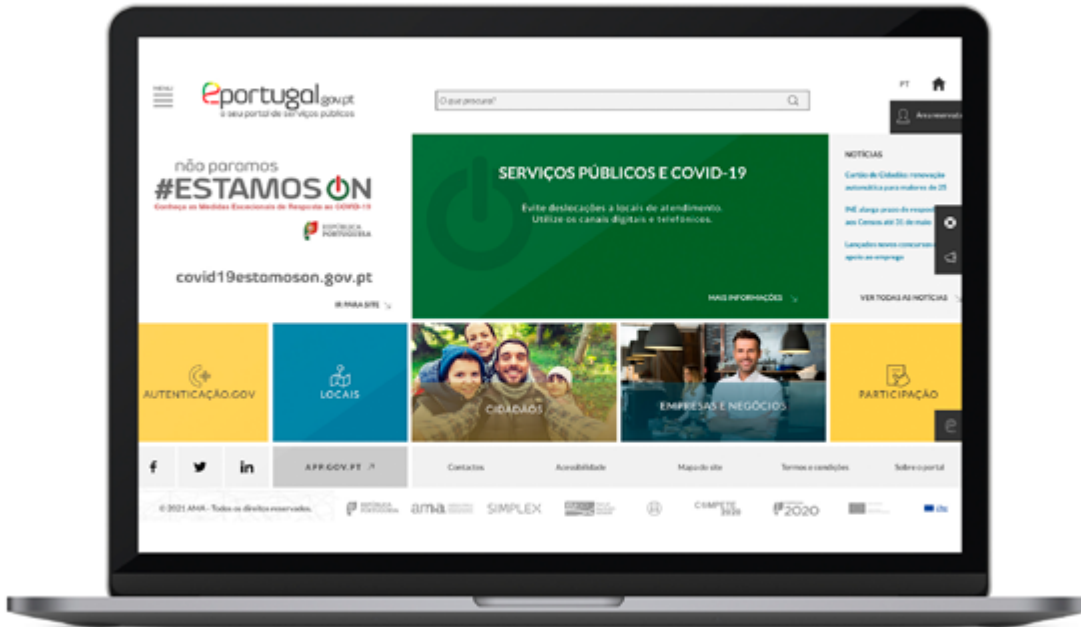
Figure 7
National Health Service Transparency portal



43 ENESIS 2020, Estratégia Nacional para o Ecosistema de Informação de Saúde, <https://enesis.spms.min-saude.pt/>, last visited 2020-05-03.

44 Serviço Nacional de Saúde, Tansparência, <https://www.sns.gov.pt/transparencia/>, last visited 2020-05-03.

Figure 8
Government portal (ePortugal.gov.pt)



ePortugal

Launched in February 2019, ePortugal was developed to consolidate separate portals providing services to citizens and businesses, respectively, and in addition to integrate information and provide access to all public services. Figure 8 shows a snapshot of the portal and the first responses from Sigma, the chatbot. In 14 months since its deployment, the portal received the submission of more than 409,000 service requests (about 30,000 per month). New services deployed are conceived based on design thinking and are developed through agile methodologies, facilitating control and adaptation as needed.

All the efforts invested on usability and accessibility when developing the portal were packaged as standard and good practices for adoption by other government agencies and are available at the Usability Portal⁴⁵, as mentioned in Section 8. This site provides resources and tools for improving the experience of using Portuguese public websites. In particular, it makes available the adopted standards, good practices for web usability and for apps, templates for web pages, a tool for validating the web accessibility practices⁴⁶, and a repository of usability components⁴⁷ for reuse, including user interface components, layout elements, iconography, buttons, code for the style of web pages (CSS code) and other resources. For promoting wide adoption of accessibility and usability in all government

45 Usability portal, <https://usabilidade.gov.pt/>, last visited 2020-05-14.

46 Access Monitor, <http://accessmonitor.accessibilidade.gov.pt/amp/>, last visited 2020-05-14.

47 Usability Components, <https://usabilidade.gov.pt/componentes>, last visited 2020-05-14

websites, best practices are certified with Bronze, Silver and Gold awards⁴⁸, provided they fulfill with the requirements. In addition, all information published in the portal undergoes a process for simplifying the language ensuring that it is available in simple words understandable by citizens.

Citizen Shops and Citizen and Business Spots

The first Citizen Shops were open in 1999, in Lisbon and Porto, and represented the first effort in implementing a one-stop access approach for public services⁴⁹. Since 1999, Citizen Shops attended citizens for delivering services more than 175.5 million times. All persons served in these places can assess, through a QR code or free SMS, the service delivery experience, contributing to enhance the service quality.

Citizen and Business Spots are two other channels for face-to-face delivery of public services. Citizen Spots are equipped with a double-screen computer, one screen for the mediator and the other for the citizen. Such mechanism enables the citizen to learn how to interact with the online systems and to control all the steps conducted for the service delivery. Citizen Spots have also been established in Sao Paulo, Paris, Brussels and London to serve Portuguese abroad. Among all of them, the Spots contributed to deliver more than 6.1 million services. The model was extended with the concepts of Solidarity Citizen Spots and Mobile Citizen Spots. The former target day-

care centers, nursing and elderly residences and comprise the operation of mobile kits by specialized mediators. The latter use minivans to deliver assisted help in remote locations or in situations of catastrophes (OECD, 2019). The Business Spot is conceived as a multichannel network adjusted to the needs of Portuguese businesses, where services can be accessed in person, by phone or online through the Espaço Empresa portal⁵⁰.

Citizen Card

The Citizen Card was launched in 2007 and the process for introducing them was smooth, since cards were issued progressively, based on citizen's demand. It is a mandatory document for all Portuguese citizens, who live in Portugal or abroad, from 20 days of age. An example of a Citizen Card is shown in Figure 9. The front part includes the card holder's photo and the following data: surnames, given name, gender, height, nationality, date of birth, civic identification number, expiry date, and cardholder's signature. On the back part, it contains the parents' names, tax number, social security number, National Health Service number, and an optical reading area. The chip contains digital certificates - i.e. card's authentication data and electronic signature, the same data included in the optical reading area but in a digital format, and the card holder's address. As an extensibility feature, more data can be added to the chip, if needed in the future.

48 Usability and Accessibility Awards (Selo de Usabilidade e Acessibilidade), <https://selo.usabilidade.gov.pt/>, last visited, 2020-05-14.

49 AMA Citizen Shops, <https://www.ama.gov.pt/web/english/citizen-shop>, last visited 2021-01-11.

50 Espaço Empresa, <https://eportugal.gov.pt/en/inicio/espaco-empresa>, last visited 2020-05-16.

Figure 10
Authentication process for accessing online services

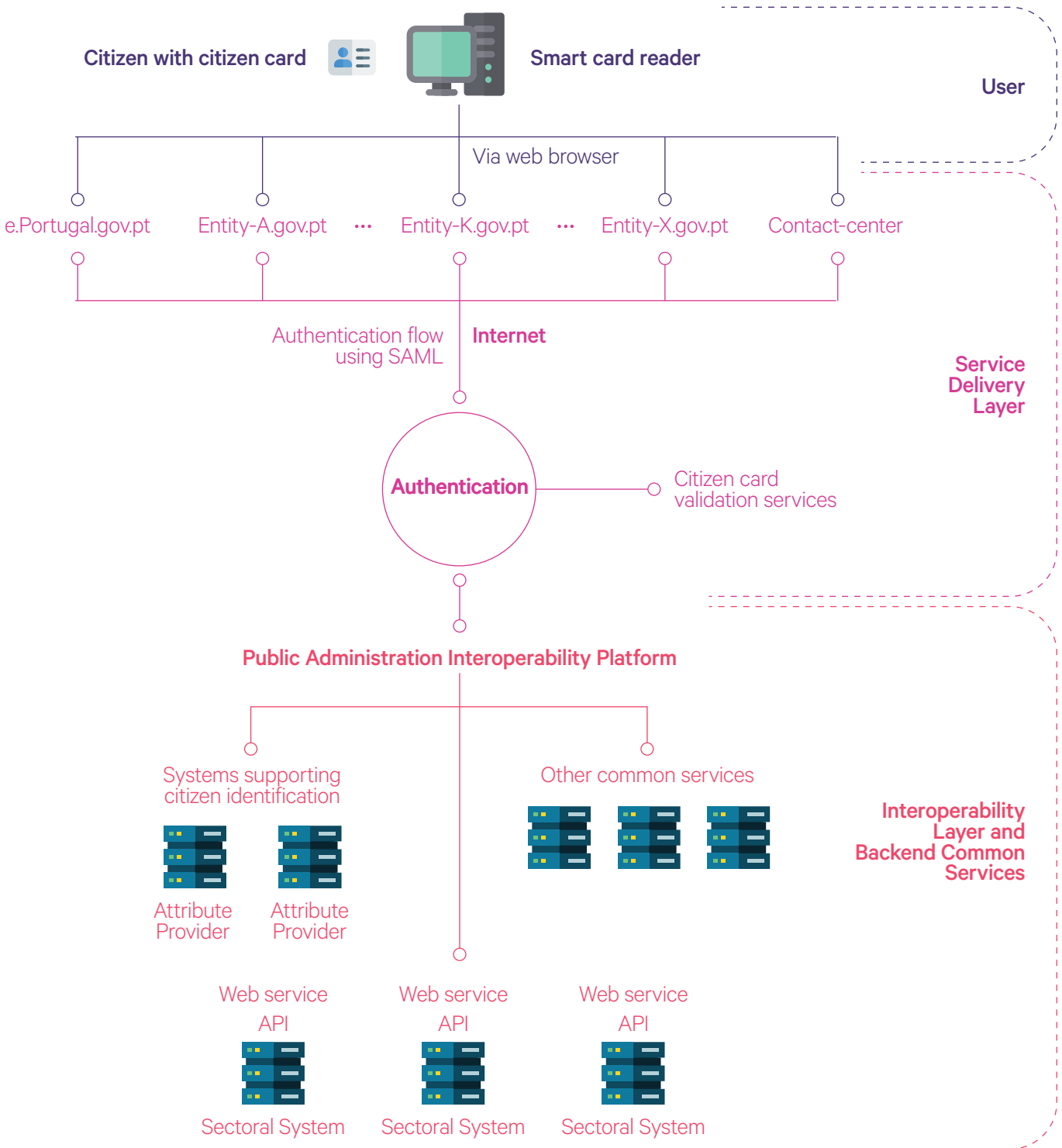


Table 15

Authentication levels and mechanisms

LEVEL	AUTHENTICATION MECHANISM ⁵²	USAGE SCENARIO
1	<ul style="list-style-type: none"> - Password - Authentication through social media 	<ul style="list-style-type: none"> - subscribing to a newsletter - applying for a commercial certificate
2	Digital Mobile Key, authenticated by <ul style="list-style-type: none"> - Mobile - Email - Twitter 	<ul style="list-style-type: none"> - accessing the secure area of the government portal - accessing specialized services, like entrepreneur’s desk
3, 4	SMS Mobile Key or Citizen Card	<ul style="list-style-type: none"> - accessing social security services - conducting bank transactions - accessing health-related data - applying for driving license

Signing

The Citizen Card also enables to digitally sign documents. The signing process requires to have enabled the digital signature in the citizen card, to have a smart card reader, to know the Personal Identification Number (PIN) code associated with the signature, and to have installed software programs enabling to digitally sign documents.

Figure 11 shows the public key infrastructure (PKI) associated with the citizen card. There is an Electronic Certification Entity of the State (*Entidade de Certificação Eletrónica do Estado*⁵³, ECEE), who provides to public entities mechanisms for secure electronic identification in their electronic transactions. ECEE is accredited by the National Security Office (GNS) as Certification Service Provider. There is a Certifying Authority (CA) for the citizen card, and four sub-certifying authorities (Sub-CA) for controlling access, signatures, authentication, and digital mobiles key (see Section 8). Finally,

ECEE interacts with the GTE CyberTrust, an international CA for high-assurance of digital certificates.

The citizen card also enables citizens to digitally sign with professional attributes, meaning proving their competencies of the activities they perform as qualified professionals. The services are provided by the Professional Attributes Certification System (SCAP), which keeps track of the professional attributes associated to a person.

There are three types of professional attributes – business, public officials, and others. Business attributes enable a person to sign on behalf of the delegated authority he or she has from a company. There are two types, quality certification and powers of administrator, manager and director; and quality certification and powers of attorney. The public officials’ attributes are available for all public managers and they enable them to sign according to the functions they perform for a given public agency. Other attributes are related to special institutions

52 As to align with the level of assurance “high” for CMD and DMK, as notified and published in the Official Journal of the European Union

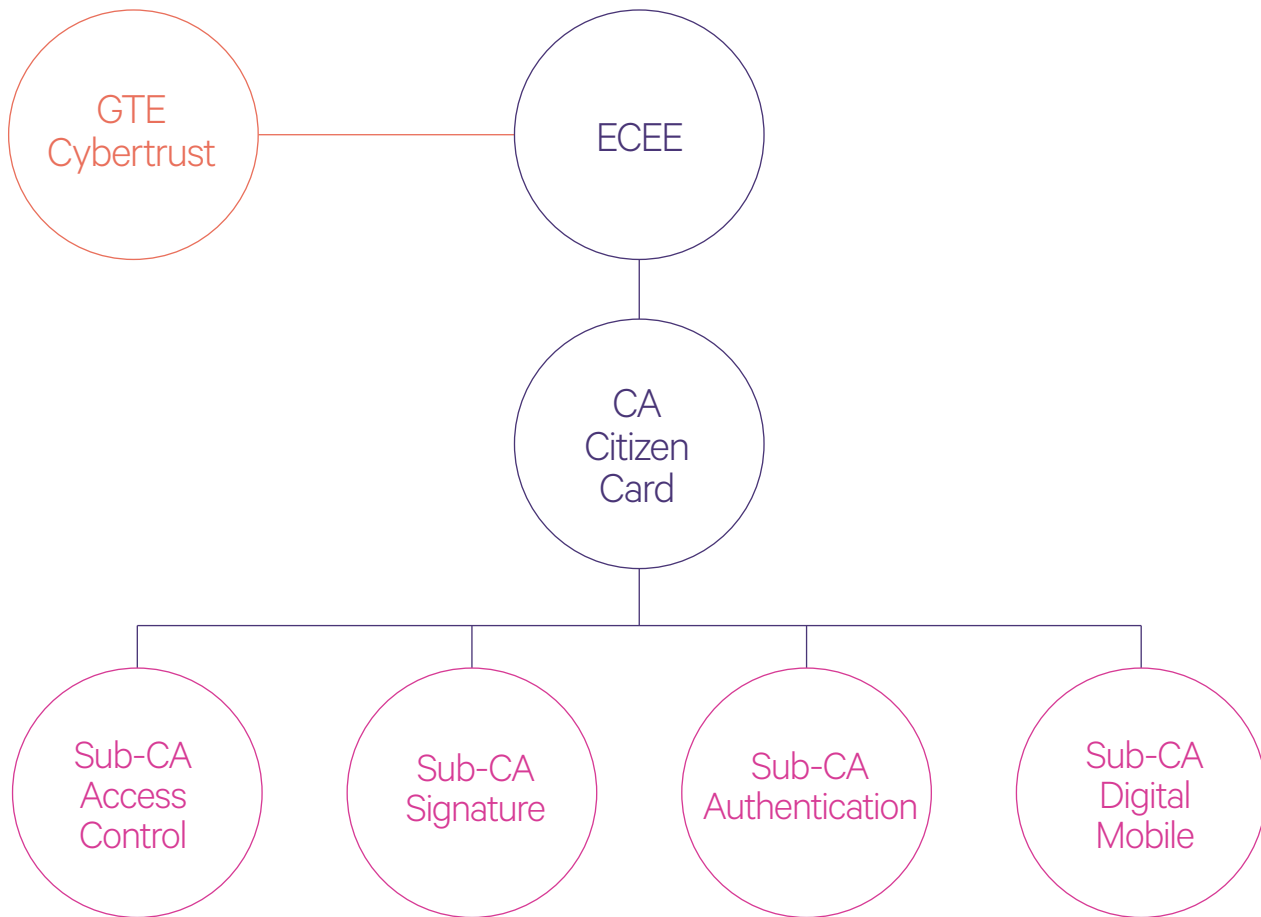
53 State’s Common Certification Entity, ECEE, <https://www.ecce.gov.pt/en/>, last visited 2020-05-13.

who adhere to the system. Currently, they include the National Road Safety Authority, and the Regional Government of the Azores.

The Citizen Card authentication mechanism is made available through autenticacao.gov, the

national electronic authentication platform, and is recognized by the European Union as compliant with the Regulation (EU) 910/2014 (eIDAS Regulation) with a “High” Level of Assurance (as published in the OJEU 2019/C 75/04⁵⁴).

Figure 11
PKI associated with the citizen card



54 OJEU 2019/ C 75/04, [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XC0228\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019XC0228(01)), last visited 11-01-2021.

Figure 12

Authentication process using digital mobile key



Digital Mobile Key

The Digital Mobile Key is used for authenticating citizens in public and private websites and to digitally sign documents. The authentication process comprises two steps. In the first one, the user needs to enter the mobile phone and the PIN code. In the second step, the service requires the citizen to enter the code sent by SMS (see Figure 12).

Complementing the authentication service, there is an app, which citizens can download in their mobiles for receiving the one-time password. The password is sent through a push notification to the phone.

Like the Citizen Card, the Digital Mobile Key is made available through autenticação.gov and is also compliant with the Regulation (EU) 910/2014 with a “High” Level of Assurance (as published in the OJEU 2020/C 116/01⁵⁵).

ID.gov.pt App

ID.gov.pt App was developed as an opportunity to have Portuguese citizens using mobile phones to keep digital IDs and use it in various contexts (as they already do with digital money), and is hence part of the national strategy for dematerializing the Citizen-State relationship with a focus on the mobile channel.

To use the app one must have a Portuguese Citizen Card, Driving Licence or ADSE card and an active Digital Mobile Key, and follow three simple steps: 1) defining a 4-digit PIN/fingerprint access code (1st use only); 2) selecting the ID cards to add – the documents currently available are the Citizen Card, the driving license and the ADSE Card; and 3) performing digital authentication through the Digital Mobile Key. The steps are illustrated in Figure 13.

After the three initial steps, the selected documents are available for consultation in the app and users are entitled to: generate

55 OJEU 2020/ C116/01. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2020.116.01.0007.01.ENG&toc=OJ%3AC%3A2020%3A116%3AFULL, last visited 11-01-2021.

QR codes for online validation of documents; create certified PDFs of the documents; delete the documents from the app. ID.gov.pt App also works in offline mode, in which case it is not possible to validate the digital documents

through the QR Code, update the ID data or generate PDF documents.

Figure 14 shows the main functionality provided by ID.gov.pt App.

Figure 13
Steps for using the ID.gov App

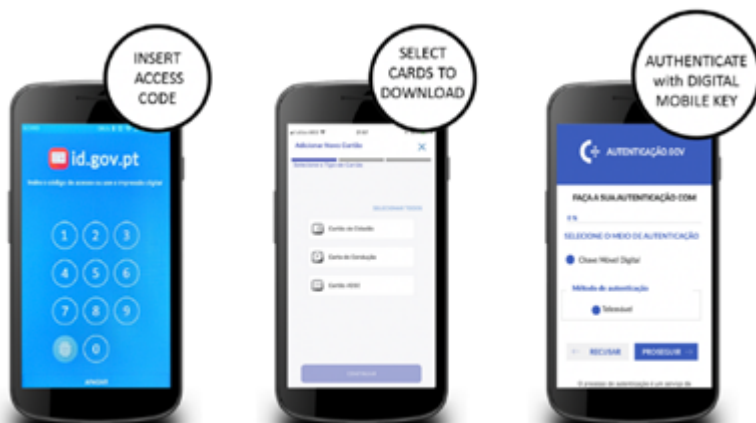


Figure 14
ID.gov App main functionality



Interoperability Platform

The Interoperability Platform provides four core

BENEFITS OF THE INTEROPERABILITY PLATFORM

- enables access to multiple services through a single access point
- applies a unique access credential for accessing different entities
- offers secure connections through the Authentication service
- guarantees reliability in service provision through continuous monitoring
- ensures technical assistance performed by a dedicated specialized team

services: 1) Integration Platform, 2) Authentication Provider, 3) Payment Platform and 4) SMS Gateway. Main features of them are explained below.

The **Integration Platform** serves as a citizen-driven service integration platform underpinned by four principles: 1) creating mechanisms of strong authentication and identity management to securely facilitate the identification of citizens for various services offered through the platform; 2) enabling the provision of horizontal services in an easy way; 3) ensuring privacy, confidentiality and security of data for citizens and the Public Administration; 4) ensuring the mechanisms needed to control transactions, quality of information and transparency in business processes supported by the Integration Platform. Services provided through the Integration

Platform use the Public Administration Canonical Data Model⁵⁶. The use of this data model enables the standardization of data exchange between the platform and the software systems used by public agencies. The platform also offers a public service catalogue⁵⁷.

The **Authentication Provider** has two main purposes: 1) enabling the use of a unique identification for a Citizen Card-holder on websites of institutions using the platform; and 2) ensuring single sign-on for accessing services provided by different institutions, like a service advertised on the ePortugal portal and implemented by software systems hosted in servers of a specific municipality.

The **Payment Platform** offers the following main features: 1) enables easy integration with any kind of operating systems through the use of web-services; 2) facilitates operational management of the solution, not requiring technical knowledge; 3) provides secure monitoring, management and control of all payment transactions through a common back-office solution; 4) supports multiple payment methods including credit cards and debit cards; and 5) uses a secure platform verified by credit card companies allowing stakeholder authentication and preventing fraudulent use of cards. The Payment Platform supports the payment methods of several systems, including the Online Registration and Certificate system, which already has a volume of more than 101,000 transactions, and exceeds 11 million Euros⁵⁸.

The **SMS Gateway** provides the following services: 1) sending SMS via Web services with SSL⁵⁹ support; 2) forwarding messages to operational

information systems of public agencies based on the message syntax; 3) integrating message exchange with the SMS centers of three mobile operators in Portugal; 4) controlling privacy levels of message information; and 5) sending and receiving multimedia messages (MMS). Some of the public services using the gateway include voter registration, the queuing systems at Citizen Shops; and alerts from the government portal.

SIMPLEX Program

The first edition was known as SIMPLEX and took place from 2006 to 2011. It was envisioned as part of a national strategy called Technological Plan Connecting Portugal⁶⁰ that aimed at facilitating widespread use of electronic government. In this edition, the goal of SIMPLEX was “Making citizens and businesses everyday life easier, by cutting red tape, reducing compliance costs and using ICT to deliver better public services” (AMA, 2006).

The Program was defined through extensive public consultations, involving all ministries and the Economic and Social Council composed by representatives of central and local government, trade unions and civil society. Most of the initiatives were focused on the development of electronic government tools, many focused on front-office-oriented processes with direct impact on citizens. The Presidency of the Council of Ministers, through the Secretary of State for Administrative Modernization (SEMA) and AMA, after its creation, were responsible for the coordination of the SIMPLEX Program. SEMA

56 The Canonical Data Model is a standard of the Portuguese Public Administration for data exchange and service integration through the iAP. The model ensures data semantic interoperability.

57 iAP Service Catalogue, <http://www.iap.gov.pt/services/InteroperabilityPlatform/ServiceCatalog.aspx>, last visited 2020-05-14.

58 iAP - Plataforma de Pagamentos, <http://www.iap.gov.pt/services/PaymentsPlatform.aspx>, last visited 2020-05-14.

59 SSL, Secure Socket Layer, is a standard technology for secure communication over Internet relying on encryption algorithms.

60 Governo aprova o Plano Tecnológico, <https://www.portugaltextil.com/governo-aprova-o-plano-tecnologico/>, last visited 09-05-2020.

monitored the implementation and informed quarterly to the Prime Minister, who in turn created incentives and exerted political pressure on the ministries to prioritize the program implementation. Progress reports were published in the Program website (www.simplex.pt).

For the 2008 annual edition, the consultation used a document explaining measures proposed by each ministry. In total, the ministries received 515 ideas, out of which 65 were integrated in SIMPLEX 2008,

representing 34% of the measures included in the Program (OECD, 2012). In addition, civil servants participated by submitting ideas through the SIMPLEX Idea Award, and municipalities joined the program through the SIMPLEX Autárquico, an administrative simplification program for local governments (AMA, 2006). In total, more than 1,000 measures of administrative and legislative simplification and automation were successfully implemented across the whole Portuguese public administration.

Table 16

SIMPLEX Programme – Example initiatives from 2006-2011 period

NAME	DESCRIPTION
Citizen's card (G2C)	The citizen card serves as an identification document. It unifies citizen's data replacing five existing cards for different public services. It also serves as digital identification for accessing digital services and for digitally signed documents.
Born citizen (G2C)	The service enables to register newborn babies directly at the place where the baby was born without need to go in person to the registry office.
Pre-filled income tax return (G2C)	The income tax return form is pre-filled with the information that the government already has about the citizen's profile, e.g. name, taxpayer identification number, and local tax office's code, as well as data about their income, i.e. wages, pensions, deductions to taxes and social security.
I lost my wallet counter (G2C)	A one-stop office called "I lost my wallet" was created to help citizens renewing missing identification cards at once.
One-stop house service (G2C)	The service called "One-Stop House" provides all procedures related to buying a property, including payment of taxes, contract drafting and signing, municipal tax exemption, and property registries, as one single service delivered through one single window.
On the spot firm (G2B)	An example of a seamless service delivered based on service integration, e.g. registry, social security, taxes, economy, it enables to create a company at a single contact point in less than one hour and without filling any application form.
Permanent certificate (G2B)	The service provides online and updated information about companies' trade registries. Available through the Business Portal and simply using a code, the information is given in Portuguese and English.
Single window for port-related procedures (G2B)	The service integrates information and several public services used and provided by ports authorities, enabling economic agents to complete online all the procedures for dispatching ships and merchandises in a faster, more convenient and paperless way.

Example initiatives of this first edition are presented in Table 16. Following the service name, we refer to the type of service, meaning G2C – government to citizen service, or G2B – government to business service. In addition to others, the example initiatives enabled Portugal to achieve the goal of 25% burden reduction target for each year of the implementation of the SIMPLEX Program. This target was in compliance with the target set by the European

Commission for the Action Programme for Reducing Administrative Burdens in the European Union, focusing on business, which was launched in 2007 (European Commission, 2007).

The second edition was known as SIMPLEX+ and took place from 2016 to 2018. With the same scope as the previous edition, it covered all government levels and areas. The goal of SIMPLEX+ was to ensure that

Public Administration provides prompt and effective responses to the needs of people and businesses. The responsibility for the execution relied on the Minister of the Presidency and of Administrative Modernization, with direct political support from the Prime Minister. The Secretary of State and Administrative Modernization was in charge of coordinating and monitoring the program, with the technical support of the AMA. The main feature of this edition is the reinforcement of the idea of co-creation, enabled by implementing a bottom-up approach collecting ideas to implement initiatives that really respond to the stakeholders' needs, adopting a truly citizen-driven approach. Stakeholder participation was facilitated by several actions as the ones described in Table 17.

The SIMPLEX+ Program was guided by six principles (Chora, Zaida, 2019):

- *Participation and Engagement* – as shown by the participation actions described in Table 17.
- *Creativity and Competition* – the ideas adopted by the Program need to be creative and were approved in a competitive way (see Startup SIMPLEX Competition in Table 17). As another example, of creativity, the Program conducted five design thinking sessions with public employees to brainstorm around shared problems and common solutions, as part of the SIMPLEX Jam action.
- *Program and Initiatives* – the Program was annually defined and comprises a series of initiatives – i.e. the 2016 edition comprises 255 measures; the 2017 edition, 172 and the 2018 edition, 175.
- *Governance and Monitoring* – The governance model comprises a network of simplex focal points,

with a representative from every ministry. Each initiative is assigned to an individual agency for implementation. The monitoring relied on progress reviews conducted every two weeks with strong focus on removing implementation barriers. For public monitoring, a website was created making available online information about the status of each initiative⁶¹. The implemented initiatives are publicized for awareness and motivation of civil servants.

- *Communication and Awareness* - Communication is considered fundamental to raise awareness of all stakeholders and to reach all relevant targets. The launch of the annual Programs is highly covered by media and merchandising is also produced to raise public awareness.
- *Execution and Evaluation* – The Program considered as a key success factor to have an execution plan and to measure its achievement. In figures, the SIMPLEX+ 2016 edition⁶² completed 89% of the planned initiatives, the 2017 edition⁶³, 80% and the 2018 edition⁶⁴, 83%. The 2017 edition was externally assessed by Nova Information Management School⁶⁵, and based on 14 flagship initiatives, it concluded that their potential represented 600 million Euros (0.3% GDP), the eliminated duplicated work valued for an estimated of 190 million Euros (0.1% GDP), and the legislative simplification produced savings for 60 million Euros.

61 SIMPLEX Initiatives, <https://simplex.gov.pt/simplexmais/medidas>, last visited 09-05-2020.

62 SIMPLEX 2016 Initiatives, <https://www.simplex.gov.pt/app/files/332c67abd4420decd48c1c6429667a35.pdf>, last visited 09-05-2020.

63 SIMPLEX 2017 Initiatives, <https://simplex.gov.pt/simplexmais/app/files/967ff098fcc6a0f72d2af69cfab39e70.pdf>, last visited 09-05-2020.

64 SIMPLEX 2018 Initiatives, <https://simplex.gov.pt/simplexmais/app/files/c2beb3fe80370629c55c3f859a522eea.pdf>, last visited 09-05-2020.

65 Nova Information Management School, <https://www.novaims.unl.pt/>, last visited 09-05-2020.

Table 17

SIMPLEX+ Programme – Example participation actions from 2016-2018 period

NAME	DESCRIPTION
SIMPLEX Tour	The SIMPLEX Tour comprises several open meetings and design thinking sessions engaging different stakeholders organized by a team of specialists across the whole country. Conducted during 2016-2018, the meetings served to collect 2,634 ideas from citizens and entrepreneurs.
SIMPLEX Jam	The SIMPLEX Jam were meetings organized with public servants from the whole country to collect their ideas for defining new services and improving existing ones. In total, 283 public servants participated in such meetings.
SIMPLEX+ Book	The SIMPLEX+ Book was a dedicated channel for any person to submit ideas, suggestions, or complaints. Through the Book, 802 proposals were received.
Startup SIMPLEX Competition	The initiative invited startups to present their ideas for improving services and products for the Portuguese Public Administration. In 2016, 196 projects were submitted and the three winner ideas were included in the Simple+2016 Program to be implemented that year.
SIMPLEX social media	SIMPLEX also opened social media channels for any person to submit ideas or engage in communication with AMA. The media include a Facebook page ⁶⁶ , and a Twitter account ⁶⁷ .

Table 18

SIMPLEX+ Programme – Example initiatives from 2016-2018 period

NAME	DESCRIPTION
Automatic Tax Declaration (G2C)	The service enables citizens to complete tax returns completely digital and automatic.
Electronic Vaccination Bulletin (G2C)	It provides online information to citizens about the received vaccines and sends personal notifications reminding about next doses.
360° School (G2C)	A solution designed by the Ministry of Education ⁶⁸ , the system centralizes information about student management processes, from pre-school to secondary education. The objective is to make all administrative information related to students available on a single platform.
Card on Wheels (G2C)	“Carta sobre Rodas” ⁶⁹ , as it is called in Portuguese, enables residents to apply, renew, substitute, or get a duplicate of the driving license online.
Medical e-Prescriptions (G2C)	It enables the prescription and dispensation of medicines through secure digital means for both citizens and health professionals.
Yellow Book (G2C)	An online channel, serving as one-stop window for any person to submit a complaint, a suggestion or a compliment regarding the public administration and its digital public services.
Declaration of Remunerations (G2B)	The service ⁷⁰ enables online declarations of remunerations to Social Security and of the monthly declaration of remunerations to the Tax and Customs Authority.
Inspection Technical Sheets (G2B)	The initiative ⁷¹ produced and make available online technical inspection standard sheets for the areas of tourism enterprises, the pastry and bakery industry, and food and beverage establishments, to standardize the inspection criteria and make them transparent to the target audience.

66 SIMPLEX Facebook page, <https://www.facebook.com/simplexportugal/>, last visited 09-05-2020.67 SIMPLEX Twitter account, <https://twitter.com/simplexportugal>, last visited 09-05-2020.68 Escola 360°, <https://e360.edu.gov.pt/e360/>, last visited 09-05-2020.69 Carta de condução, <http://www.imtonline.pt/index.php/condutores10>, last visited 09-05-2020.70 Services provided by Tax and Customs Authority, <https://www.portaldasfinancas.gov.pt/at/html/index.html>, last visited 09-05-2020.71 Fichas Técnicas de Fiscalização, <https://eportugal.gov.pt/cumprimento-de-obrigacoes/fichas-tecnicas-fiscalizacao>, last visited 09-05-2020.

One-Stop Window for the National Petroleum System (G2B)	It delivered ⁷² a new system architecture that enabled to extend digital platform to new public entities, new functionalities as well as reinforcement of the data processing capacity on the energy sector, feeding the legal competences of each of the involved entities.
Entrepreneur Desk (G2B)	To provide online access to licensing and economic activities through one-stop window, called “Balcão do Empreendedor” ⁷³ , ensuring the use of web services to integrate business processes of the following activities related to: 1) lenders, auctioneers and others provided in the legal regime for trade, services and catering, 2) sea, 3) livestock, 4) industrial licensing; and 5) urban planning control.
Paperless Invoice (G2B)	The service ⁷⁴ eliminates the printing of invoices replacing them by the corresponding electronic proofs.
Government Portal (G2C, G2B)	The one-stop portal, consolidating all services to citizens and business, was one of the last initiatives implemented by the SIMPLEX+ Program

72 Balcão Único Eletrónico do Sistema Petrolífero Nacional, Simplex+ 2018 G2B services, <https://simplex.gov.pt/simplexmais/medidas>, the service is available at: <https://balcao-unico.ense-epe.pt/ContaUtilizador/Autenticacao?ReturnUrl=%2f>, last visited 09-05-2020.

73 Balcão do Empreendedor, <https://eportugal.gov.pt/inicio/espaco-empresa/balcao-do-empreendedor>, last visited 09-05-2020.

74 Certificação de Programa de Facturação, <https://eportugal.gov.pt/pt/servicos/consultar-estado-da-certificacao-de-programa-de-faturacao>, last visited 09-05-2020.

The third edition, known as iSIMPLEX started in 2019, and the plan is that it will last until 2021. The participation feature remains one of the pillars of the Program, and the distinguished factor is that the initiatives should be characterized by its innovative nature. The 2019 edition included 119 projects classified in five axes:

1. *Once only* – comprises 22 initiatives implementing the Only-Once principle enforced by the EU e-Government Action Plan 2016-2020 (European Commission, 2016). The principle requests public entities to refrain from requesting more than once the information that citizens and businesses have already submitted to the government. Its implementation is based on government information sharing and the fact that public entities must always respect issues related to data protection.
2. *Share and reuse* – includes 20 measures enabling to share capabilities and resources available in the public sector. It relies on promoting collaboration among public agencies, adoption of standards, interoperability platform, common vocabulary, and reuse of resources and solutions by all government levels and areas.
3. *Digital by default* – contains 41 measures contributing to the digitization of forms and procedures. Main values for this axis include ensuring multichannel models for service delivery (not only digital channels), strengthening proximity to service recipients, diversification and greater accessibility to public services.

4. *Economic behavior* – comprises 7 measures related to the development of tools promoting the voluntary adherence of stakeholders' behavior to certain culture and values promoted by administrative modernization strategies, including better understanding of rules and new systems implemented by the public administration, initiatives enabling citizens to save water, electricity, paper, as well as the design of mechanisms for ensuring compensation for the adoption of such behaviors. The implementation of such initiatives relies on an inductive approach combining contributions from psychology, cognitive sciences, and social sciences to understand decision-making processes, and the application of such knowledge in the formulation of public policies.

5. *Emergent technologies* – involves 29 measures focused on driving innovation in the public sector, introducing new technologies contributing to increase the productivity of public services. Example technologies include Artificial Intelligence, Data Science, Internet of Things and Blockchain.

As participation mechanisms for iSIMPLEX, AMA conducted six sessions of design thinking and two thematic sessions of co-creation. Example initiatives of the first year of this edition are shown in Table 19.

Table 19

iSIMPLEX Programme – Example initiatives from 2019 period

NAME	DESCRIPTION
Automatic Renewal of Citizen Card (G2C)	The service enables the automatic renewal of citizen cards that do not require the collection of biometric data, by means of an ATM reference payment sent by SMS together with the expiry notice (Once Only Action Axis)
“ContratAPP” – Public Procurement Network (G2B)	It implements a public procurement mechanism on a digital platform (e-procurement), allowing collaborative legal work among members of a network involving 60 services and agencies of the public administration (Share and Reuse Action Line Axis)
Electronic Car (G2C)	It dematerializes the processing of road traffic offense records, allowing the electronic signature of the records by the security forces and the electronic processing of the offender's notification (Digital by Default Axis)
Point Fishing (G2B)	It creates a system for awarding cumulative points to fishermen who deliver used fishing nets and other waste to the "blue banks" of the fishing authority. The points are converted into benefits for fishermen (Economic Behavior Axis)
LOWER Abandonment in HIGHER Education (G2C)	It provides a system that, using artificial intelligence, will manage a predictive data analysis model for identifying indicators of risk situations of abandonment and for creating a mechanism supporting decision-making processes for taking preventive actions (Emergent Technologies Axis)

The 2020/2021 edition of the SIMPLEX Programme was launched in the first quarter of 2020. This edition has a clear vision of the needed changes so that the Public Administration is always up to any challenge, serving society,

boosting the economy, and projecting the image of a modern and innovative country. The Program is structured into two axis and eight categories, as shown in Table 20.

Table 20

2020/2021 SIMPLEX Programme – Axis and categories

AXIS	CATEGORY
Better Public Service (BPS)	Simplifying the fulfillment of obligations (BPS-C1)
	Reducing the number of interactions with the Public Administration (BPS-C2)
	Expanding digital services (BPS-C3)
	Strengthening the proximity to people and territories (BPS-C4)
Modern and Innovative Public Administration (MIPA)	Building civil servants' competencies (MIPA-C1)
	Promoting collaboration between entities and sectors (MIPA-C2)
	Increasing efficiency through technology (MIPA-C3)
	Boosting participation (MIPA-C4)

Table 21 illustrates example initiatives of the 2020/2021 SIMPLEX Programme.

Table 21

SIMPLEX Programme – Example initiatives from the 2020/2021 edition

NAME	DESCRIPTION
IRS and VAT more Automatic (BPS-C1)	Further extension of the scope of application of the Income Tax on Individuals (IRS) and Automatic VAT measures, to further simplify compliance with tax obligations.
One-Stop Portal for Agriculture (BPS-C2)	The One-Stop Agriculture Portal aims to simplify and streamline the relationship with farmers, citizens, companies and other economic agents, functioning as an online service point.
My Data (BPS-C3)	Services providing mechanisms for consultation and validation of data contained in the main Public Administration records and monitoring of "my data" shared through the iAP Interoperability Platform.
Inclusive Contact Center (BPS-C4)	Provision of a more accessible and personalized interactive video call channel to support emigrants in the use of services provided by the National Support Centre for Migrants Integration.
SIMPLEX PA Mode (MIPA-C1)	Training to deepen the culture of simplification and innovation in public administration, developing attitudes and capacities in workers and managers to carry out work in a simple, fast and effective way.
Dematerialization of Court communications with Health and National Road Safety Authority (MIPA-C2)	Dematerialization of requests originating in the Courts for consultation of the individual registry of the driver in the context of legal proceedings and a pilot for the dematerialization of requests for information between the Courts and Health entities.
Interoperability between BASE.GOV and Portugal 2020 (MIPA-C3)	The measure allows the transfer, to the Portugal 2020 information system, automatically, of the information contained in the BASE.GOV.pt website regarding public contracts identified by beneficiaries.
EUELEITOR (I Voter) (MIPA-C4)	Make available to polling stations set up abroad, in the elections for the Presidency of the Republic, European Parliament, and Assembly of the Republic, dematerialized electoral rolls (electronic), allowing the electronic consultation of voters registered in that voting section and the voting register.

Regarding measuring the impact of the SIMPLEX Program, AMA requested two external evaluations; one commissioned to NOVA Information Management School at the Universidade Nova de Lisboa (GSEMA), and the other, funded by the European Union via the Structural Reform Support Programme, was implemented by Ernst & Young in cooperation with the European Commission's Structural Reform Support Service (E&Y, 2019). The former analyzes the impact of 13 initiatives implemented by the 2016 SIMPLEX+ edition; while the latter, 40 measures of the 2017 edition. Some main results were shown in Section 8, and examples of two initiatives analyzed are shown below.

2016 INITIATIVE

Remuneration Statement for the Interactive Social Security

Administrative cost savings:
€ 259,818 millions

% of improvement: **75%**

Economic impact on GVA:
€ 383,447 millions

Time saved for public administration:
424,298 hours

Perceived efficacy:
73 points (out of 100)

Perceived performance:
73 points (out of 100)

2017 INITIATIVE

Automaric Tax Declaration

For beneficiaries:

Administrative costs eliminated:
€ 41,688,657

Time saved:
6,473,394 hours

Implementation costs:
€ 52,322

Net savings generated:
€ 41,636,336

Effectiveness Index: **86%**

Performance Index: **94%**

SAMA2020

SAMA2020 provides a solution to execute digital transformation projects in Portugal. It comprises software systems to support the management of the projects and a funding mechanism. SAMA2020 relies on European structural and investments funds, namely the European Regional Development Funds (ERDF) – promoting balanced development across Europe, and the European Social Funds (ESF) – supporting employment-related projects throughout Europe and investing in Europe’s human capital⁷⁵.

Projects funded by ERDF can be classified in six areas – 1) *Digitization* – dematerializing business processes or providing digital services, 2) *Channels* – enlarging and/or restructuring of digital public service delivery channels; 3) *Restructuring information and communication systems (ICS)* – restructuring and reframing of ICS in different government areas at the national and local level, 4) *Integration* – implementing common and integrated ICT solutions to facilitate the delivery of integrated public services, the development and adoption of shared services, and the improvement of governance mechanisms; 5) *ICT on Network* – providing networked ICT services; and 6) *Innovation* – experimenting and disseminating innovative use of ICT in the provision of public services.

Projects funded by ESF can be of the following types: 1) *Studies and diagnosis* – related to regulatory impact assessment, legislative simplification, process optimization, promotion of transparency, good governance, and corruption risk management; 2) *Development*

of tools – for managing, monitoring, following-up, and assessing public policies and collective infrastructure and equipment; 3) *Knowledge sharing* – dissemination of good practices related to internal organization, public services to citizens and businesses, process reengineering, innovation labs, incubation platforms, and integrated governance; 4) *Development and implementation* – of assessment systems for the provision of public services, systems for assessing user satisfaction, systems for service level monitoring, and service quality certification; 5) *Structure and service rationalization* – study and implementation of rationalization plans for structures and services, in particular solutions for creating or restructuring services aiming at reducing the demand for information requested to citizens and businesses, and reusing information already existing in public services; and 6) *Structure and process rationalization* – same aim as the previous one but with the scope of structures and processes aiming at improving efficiency, effectiveness and quality for citizens, business, in terms of cost, responsiveness or added-value.

The life cycle of an edition comprises the following five stages:

1. *Call for applications* – ensuring, in coordination with AMA as the Management Authority, the programming and compliance with the annual plan of calls for applications; preparing and disseminating the call for applications, organizing and conducting workshops for raising awareness, and clarifying doubts and supporting candidates in preparing their applications.
2. *Evaluation* – ensuring the organization and verification of the application processes,

⁷⁵ European Structural and Investment Funds, https://ec.europa.eu/info/funding-tenders/funding-opportunities/funding-programmes/overview-funding-programmes/european-structural-and-investment-funds_en, last visited 2020-05-20.

namely by carrying out its registration, documentation control, request and receipt of elements necessary for the evaluation of the application; evaluating the financial and technical eligibility and acceptability of the project and the beneficiary; and selecting applications that fulfill the selection criteria.

3. *Contract* - ensure that beneficiaries sign financing contracts for approved operations; and ensuring compliance with the terms of references, or with the contracts, the decision to grant funding and compliance with the applicable rules.

4. *Monitoring* – involves three major activities: financial monitoring, onsite monitoring, and reevaluation and reporting. The financial monitoring comprises verifying payment requests and compliance with public procurement procedures within the co-financed projects; uploading information on the monitoring of the implementation of the projects; and verifying the expenditure's eligibility. The onsite monitoring includes verifying that the financed products and services have been provided; ensuring that project promoters maintain a separate accounting system or an adequate accounting code that complies with the applicable accounting standards; ensure the collection and processing of physical, financial and statistical data on implementation for the development of monitoring indicators and for strategic and operational assessment studies. The reevaluation and reporting refer to conducting the technical and financial analysis of the amendments to the approval decision formalized by the beneficiaries; and promoting the evaluation of the interim and/or final implementation reports submitted by the promoters.

5. *Closure* – ensuring compliance with contractual terms, including compliance with objectives, output and result indicators and proposing the project closure to the management authority, and ensuring the permanent updates to the information systems of the management authority.

Table 22 shows the indicators defined for assessing SAMA2020.

Some of the facilitators contributing to the implementation of the initiatives include the rapid technological transformation enabled by innovation accelerators, like cloud computing and blockchain; having strong government leadership and a supportive legal framework; the availability of technology infrastructures, including computer platforms and software products; and the motivating effect that international e-government rankings produce in government leaders.

Appendix C

Table 22

SAMA2020 indicators

TYPE	ID	DESCRIPTION
Realization Indicators ERDF	1	Number of public services subject to dematerialization in an integrated manner
	2	Number of information systems based on new service models integrated with others in different sectoral areas and levels of administration
	3	Number of information systems adopting the use of authentication and electronic signature services
	4	Number of information systems that become interoperable with each other using the Public Administration interoperability platform (iAP)
	5	Number of processes subject to reengineering and simplification, with multi-sectoral and multi-level integration between services
	6	Number of priority actions planned at the European level in the area of e-administration
	7	Number of rationalization measures planned under the Global Information and Communication Technology (ICT) Action Plan in the Public Administration
Result Indicators ERDF	8	Individuals using the Internet to complete and submit printouts or official forms
	9	Companies using the Internet to interact with public bodies, entities and authorities, as part of the results of the operation
Realization Indicators ESF	10	Number of diagnostic actions and/or regulatory impact assessments to simplify legislation and streamline procedures
	11	Number of action plans implemented in the areas of promotion of Open Administration, aimed at fostering transparency, good governance and management of corruption risks
	12	Number of new models of innovation and testing implemented in the Public Administration
	13	Number of public services subject to assessment of the respective service provision and user satisfaction
	14	Number of promotion and dissemination actions aimed at disseminating best practices and sharing knowledge of new forms of internal organization and provision of public services to citizens and companies
Results Indicators ESF	15	% of legislative simplification measures preceded by regulatory impact assessments, one year after completion of the operation
	16	% of processes subject to reengineering and/or simplification implemented, one year after completion of the operation
	17	% of services in which the methodology of satisfaction assessment, monitoring of service levels and/or quality assessment was implemented one year after completion of the operation
	18	Other specific outcome indicators that contribute, directly or indirectly, to the OP's outcome indicators.

LabX

The vision of LabX is to transform the Public Administration into a space where daily practices are continually questioned, and innovation -incremental or disruptive- is considered and tested with the aim of improving the public service; a space of collaboration beyond organizational borders, sensitive to the aspirations of society, where public services are designed for and with citizens and businesses; and a challenging space to work, where public servants are proactive agents of change, true experimenters, and entrepreneurs.

LabX relies on five principles: 1) learn about and with the citizens, 2) getting data and generating knowledge, 3) presenting evidence to inform decision making, 4) materializing ideas to

validate them, and 5) experimenting to improve. Based on the principles, the methodology they apply for conceiving and testing innovations include three steps: 1) *Investigate* – to know the needs and expectations of citizens and businesses, instead of assuming that public servants know them, so to define a real problem to solve; 2) *Co-create* – to generate alternative solutions in collaboration with citizens, researchers, entrepreneurs, public servants and representatives from the private sector, NGOs and other social actors, so to find the most adequate or the best solution; and 3) *Experiment* – to test solutions before advancing with their implementation, so to learn from own mistakes, to progressively adapt innovations, and to obtain greater control over development risks.

Table 23 summarizes example projects conducted by LabX.

Table 23
Example projects conducted by LabX

CITIZEN SHOPS

Challenge: improving face-to-face services, addressing changes that occurred since their creation in 1999.

Solution: new protocol designed based on fieldwork, participatory mechanisms, and prototyping and testing in context.

NETWORK OF INNOVATORS

Challenge: building up a community (virtual and real) to share experiences, skills, and problems among public servants.

Solution: Network created and conducting regular collaborative sessions; opening a channel for sharing a challenge, a lesson or practical exercises around innovation; online sharing of knowledge; developing a Toolkit and Toolbox for co-creation with innovators.

PUBLIC SERVICE AS LIVING LAB

Challenge: setting up a living lab in the Citizen Shop of Aveiro, so public entities can test and learn from citizens the best solution to improve their service before scaling it.

Solution: developing, testing and monitoring high level prototypes with Research & Development partners, exploring and testing technical solutions

DEATH AND BEREAVEMENT DESK

Challenge: creating a single and integrated desk to solve multiple issues related to a relative's death, using faster, simpler and human way.

Solution: creation of "Espaço Óbito" based on work with research centers, definition of a proof of concept, and pilot.

MORE TRUSTED AND BETTER TAX SERVICES

Challenge: making more transparent and collaborative the relationships between tax payers and the Tax Authority.

Solution: Recommendations based on: research ethnography in 3 sites; digital survey with 1001 participants; in depth interview with employees; on site survey with 251 tax payers; behavioral insights project about written communications; and a proposed methodology for the simplification of documents based on the participation and collaboration of citizens («Workshop of Simplification»).

EDUCATION FOR CITIZENSHIP

Challenge: finding alternative ways to promote citizenship and participation among children and youth.

Solution: applying a participatory diagnosis, and developing a gamification solution (450 kits delivered to +350 schools and associations).

AMA Academy

As explained in Section 8, the Academy is organized based on the concept of “learning communities”. Currently, they have six communities – 1) *Citizen Shops* – it includes various sub-communities depending on each specific training; 2) *Bereavement Space* (Espaço Óbito) – engaging the mediators working at those desks; 3) *International Partnerships* – it has one sub-community for the staff involved in the collaboration established between Portugal and Mozambique during 2015-2016; others can be created following the same model as the previous one; 4) *Technical Solutions* – currently, there is only one dedicated to the AMA

document management platform, targeted to AMA employees; 5) *Information Security* – there are two sub-communities, one dedicated to AMA employees and another to persons collaborating with AMA; and 6) *Immerse Training in Service Design* – there are several, one for each group of trained staff.

AMA Academy provides three levels of training – initial, technical and long-life; in five main areas – customer service, digital citizenship, personal development, leadership and strategy, and ICT. The trainings are conducted using an e-learning platform, multimedia content, interactive guides, simulation tools, educational games, role-playing activities and are based on collaboratively-developed content.

Figure 15
AMA Academy portal (academia.ama.gov.pt)



Table 24 summarizes example training programs developed by AMA Academy.

Table 24

Example training programs developed by AMA Academy

AREA: CUSTOMER SERVICE

Courses:

- Challenges and Requirements of Civil Servants
- Omnichannel Public Service
- Emotional Intelligence in public service

Training solutions: multimedia content, service scenarios, good practice examples, testimonials

AREA: DIGITAL CITIZENSHIP

Courses:

- Access to Digital Services through Portal ePortugal
- Digital Mobile Key
- Accessibility of Digital Content

Training solutions: interactive content, pedagogical videos, simulations, video with sign language.

AREA: PERSONAL DEVELOPMENT

Courses:

- How to be More Productive at Work
- Fixed Mindset vs Growth Mindset
- Teleworking in Isolation Time

Training solutions: microlearning, case studies, exercises, inspirational videos, problem solving cases.

AREA: LEADERSHIP AND STRATEGY

Courses:

- Design Thinking: a Tool for Innovation
- Remote Work Team Canvas
- How to Motivate My Team

Training solutions: design tools, mural sessions, active learning, case studies, brainstorming, gamification

AREA: INFORMATION AND COMMUNICATION TECHNOLOGIES

Courses:

- Microsoft Teams
- Mail Merge
- Creating Macros in Excel

Training solutions: exercises, tutorials, demo videos, step-by-step guides, microlearning, interactive content

TicAPP

TicAPP pursues six strategic objectives: 1) *Integrating services* – following a user centric design approach driven by the needs of the end users; 2) *Optimizing development processes* – contributing to speeding up and increasing the efficiency of the development processes of digital services using agile methodologies⁷⁶; 3) *Promoting the use of common technical solutions* – widely promote the use of existing software components, like authentication service, payment platform, and SMS Gateway provided by the interoperability platform, to speed up the development process of digital services and to comply with government standards and regulations; 4) *Building common platforms* – providing common solutions for digitization of services and data analysis; 5) *Supporting solutions based on data analytics* – promoting the use of data analytics for making predictions to improve public services and support government decisions; and 6) *Developing and disseminating good practices* – providing training on good practices and digital skills in public services to manage talent and extend civil servants' digital competencies.

Since its creation in 2019, they conducted 12 projects⁷⁷, worked with seven public entities in five government areas, implemented two strategic projects from the Digital Agenda 2019-2020, developed two guides for developing digital services, e.g. Guide for Digital Transformation⁷⁸, and organized 11 conferences and workshops for sharing good practices and knowledge within the public sector.

⁷⁶ Agile Methodologies refer to a new paradigm of software development based on principles defined by the Agile Manifesto (<https://agilemanifesto.org/>). Examples of such methodologies are Scrum, Lean, Kanban, among others.

⁷⁷ TicAPP conducted projects, <https://ticapp.gov.pt/en/projets/>, last visited 2020-05-20.

⁷⁸ Guia para Projetos de Transformação Digital, <https://ticapp.github.io/GuiaTransformacaoDigital/>, last visited 2020-05-20.

INCoDe.2030

Figure 16 shows the five action lines and the flagship initiatives in each of the five main areas of INCoDe.2030 and are explained in the following. In the **Inclusion** action line, they assessed what has been done before, which was mainly training activities. They observed that the major problem was that the trained persons were not exercising the skills learnt after the training. To address the problem and create the needed motivation, they developed the concept of Creative Communities for Digital Inclusion. The idea behind the training is that the training has a cultural setting according to the culture and needs of the community. Thus, the persons are engaged due to their cultural interest; for example, a community interested in knitting, they taught the members how to use email for exchanging techniques, use of social media for sharing videos, etc. Initially, the participants meet once or twice per week and gradually they promote to communicate online.

Through the **Education** action line, they promote mandatory education on ICT from first to ninth grade; so, all students on such grades have an ICT course of 30 mins per week. The approach has been adopted at the national level. In addition, they promote the introduction of a computing perspective for primary and secondary education focusing on computational thinking, creative thinking, trying to promote computer science skills.

Figure 16

Action lines and flagship initiatives of INCoDe.2030



In the **Qualifications** area, they are putting in place programs for requalification of professional graduates. They have 8-12 month programs for developing specialized ICT skills addressed to professional graduates, typically but not necessarily, from STEM, although other graduates from disciplines like psychology and philosophy are also enrolled. They provide an intensive training for specific technologies – e.g. Microsoft technologies, Sun Microsystems technologies, mobile technologies, programming languages, like C or Java. The courses are developed and taught in collaboration between private companies and higher education institutions. In particular, for the program called Skills Up, in the first edition, the program ensures that for those trainees that approved the program, they have one-year contract hired by the sponsoring company, with

a specified salary (about 1200 EUR/month). The selection process for accepting a candidate is very competitive, since there are many applicants, and the edition only had 600 vacancies.

Efforts in the **Specialization** area contributed to create and support two-year digital-oriented degree programs at the Specialization level, previously inexistent in Portugal, called *Técnicos Superiores Profissionais*. The programs focus on professional settings and the last six months of the program, the students receive training as an internship in a company. They have about 5,000 students enrolled in such programs. They are also working on the creation of a master level program, Executive Digital Master Program, a kind of MBA program focused on specific digital technologies, e.g. big data or blockchain, for non-ICT graduates.

The **Research** area aims at promoting partnerships with international universities, like University of Texas at Austin and Carnegie Mellon University for the development of PhD programs, on specialized areas, like AI or Advanced Computing. In addition, they support the development of national strategies, by establishing a working group and establishing an agenda for their work. Once approved, they create a committee to accompany the implementation and revise the strategy annually. They have already developed the Artificial Intelligence Portugal 2030 Strategy (INCoDe.2030, 2019), and the Advanced Computing National Strategy (INCoDe.2030, 2019).

Two main critical success factors for the program include the political empowerment received directly from the Prime Minister that helps to keep the private sector, academia, and public agencies interested in the program, and having multi-sectoral stakeholders with vast knowledge and expertise engaged with, contributing to and supporting the program.

GovTech

Since it was established, GovTech conducted two editions. Section 8 shows the results obtained. The first edition received a greater number of projects due to more government efforts invested in promoting the initiative. The second edition, despite receiving fewer projects, raised more interest in terms of participation. However, there were less investments in *GovTechs* due to fewer members voting.

In both editions, there were six finalists, who participated in a face-to-face final event. For this stage, they need to submit a prototype and demonstrate it during the event. The judges assess the projects and have the final vote. In both editions, there were three winners. Each of them received a € 30,000 prize, signed a collaboration

protocol with a public agency designated by AMA for the experimental implementation of the prototype, was granted a working space in an incubator from the national network of incubators for a three-months period, was awarded the participation in the Web Summit, received an evaluation of the suitability of the prototype for implementation, and got support for internationalization with the aim of deploying their business in developing countries.

Two major challenges refer to raising awareness about the SDGs among entrepreneurs, and engaging citizens and for them to understand the system rules; i.e. how to earn *GovTechs* and the meaning of it.

Justice Portal

The portal provides information and access to the following categories of services: 1) civil – provides information about services related to birth, marriage, divorce, separation of people and goods, death, heritage, and change of name and gender; 2) nationality – Portuguese nationality; 3) Identification – citizen card and electronic passport; 4) buildings – information related to legal documents and registries; 5) commerce – legal documents and procedure for establishing a business; 6) vehicles – unique vehicle document and other vehicle documents; 7) criminal – access to the certificate of criminal records; and 7) industrial property – including information about registration of brands, patents, and designs. The information available includes the service eligibility criteria, application procedure, legal issues related to the service, cost fees, and contact points for accessing the service. It also provides information about legal procedures, like legal protection, conflict resolution, structure of the Criminal Justice and Juvenile Justice, and a directory of the various institutions depending on the Ministry of Justice.

Closer Justice Program

The Closer Justice Program comprises four pillars for structuring initiatives. Figure 17 depicts the four pillars and their aim.

Figure 17
Closer Justice 20-23 Action Plan – Pillars

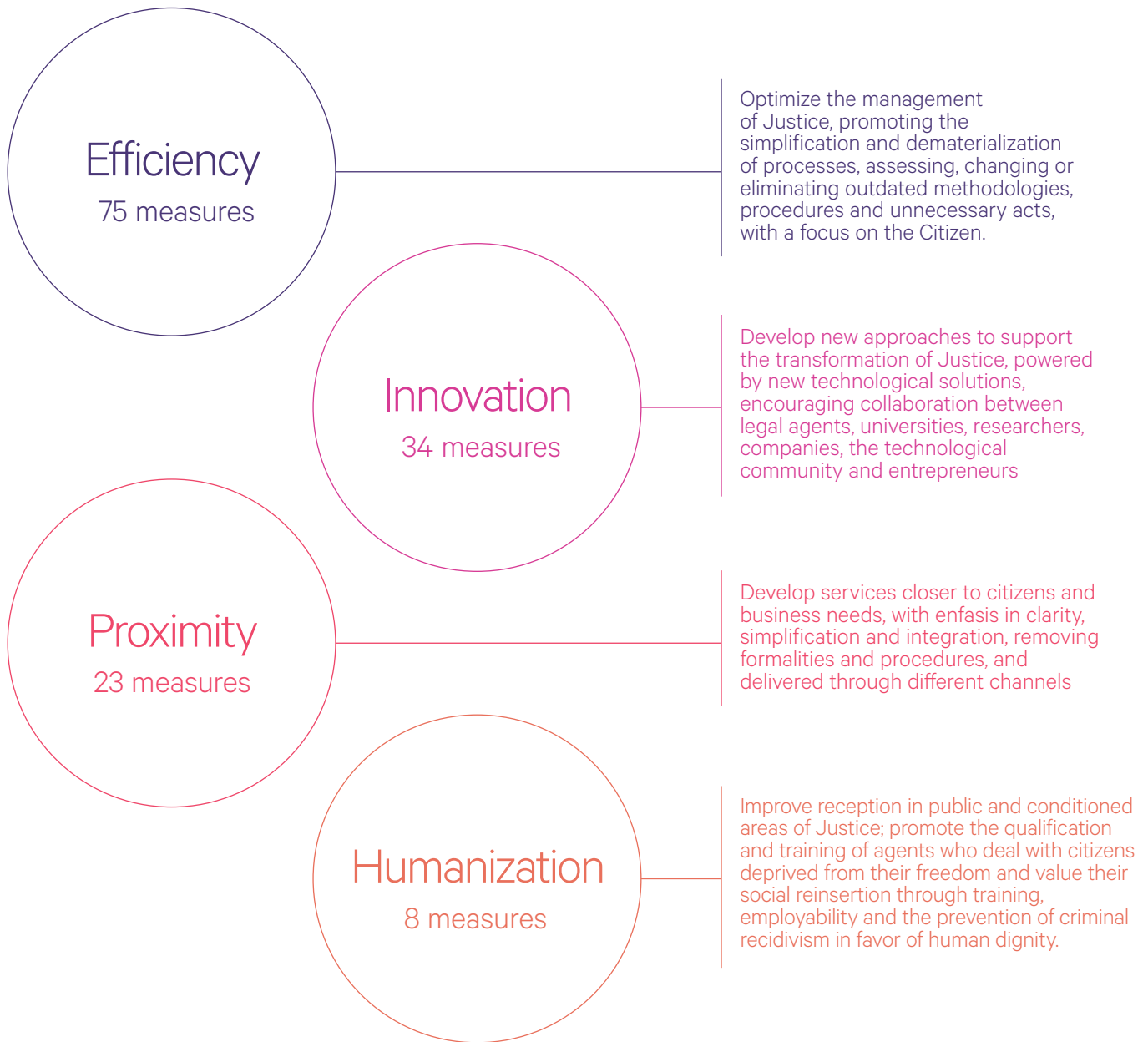


Table 25 shows four example measures of the Closer Justice 2020-23 Program, one for each pillar.

Table 25

Closer Justice 2020-23 – Example measures

NAME	DESCRIPTION
Information System for Insolvency Administrators (Efficiency)	Provision of an information system to support the activity of judicial administrators within the scope of the procedures related to insolvency.
Alert of alterations to Certificates of Criminal Record (Innovation)	To make available the service of subscription of alerts to recipients of Certificates of Criminal Registries when any possible alterations of non-Criminal Registered information are made.
e-Learning training for prisoners (Proximity)	Development and use of educational content for the training of prisoners, via e-learning, with a view to promoting their employability, while also exploring synergies with educational institutions.
Closer Health (Humanization)	Strengthening the adoption of telemedicine in prisons and community health units.

In the following three sections, we explain how the digital transformation of Portugal enabled government readiness to respond to the challenges raised by the COVID-19 pandemic, whole-of-government responses to mitigate the crisis, as well as responses from the justice area.

Readiness and Responses to COVID-19 Pandemics

Government Readiness

The most significant capacities provided by digital transformation efforts that enabled the Government to better respond to the challenges raised by the COVID-19 pandemics are the citizen

electronic identity (eID) and the interoperability platform.

The **eID solution** became critical because using digital public services became the rule at the time when face-to-face interactions were avoided and

accessing new and existing services require secure authentication. The Citizen Card and the Digital Mobile Key have been available for some time prior to the pandemic and are well known by citizens. However, for those citizens who were still not aware about how to access digital services, AMA launched video tutorials explaining how to use digital public services. In addition, some features of the Digital Mobile Key were made to extend the validity date of official physical documents; i.e. those expiring since February 24, 2020 were automatically considered valid until October 30, 2020.

The **interoperability platform** became a key resource for two reasons. First, the integration platform allowed for the quick deployment of many services, enabling different entities to exchange information among themselves and quickly sorting out the way to move forward. Second, the SMS gateway was fundamental in ensuring the continuity for issuing medical prescriptions and to communicate important messages to citizens at any time.

Whole-of-Government Responses

ePortugal - the one-stop public service portal was selected by the Government to be the main channel to provide information regarding the impact of COVID-19 in public services. For this purpose, the homepage of the portal was revamped in 48 hours, and a series of COVID-related pages were created, one for general information and several focusing on different government areas, like justice, social security, employment, and others. New interfaces were developed facilitating public entities to publish information about the location of public offices and restricted areas. A content strategy was designed including guidelines to highlight changes in the content of the most demanded pages of the portal. The other thousands of web pages were

complemented with general warnings directing users to the covid-19 “special” pages.

New video call answering services were developed for citizen contact centers. There was a reinforcement of resources in contact centers to guarantee a centralized response about queries related to the use of digital services.

At the Entrepreneur’s Desk, the approval periods defined by default for businesses were suspended. With this measure, the **counting of deadlines for procedures** that provide for tacit approval was automatically suspended. The counting will resume when the suspension ends.

The concept of **Citizen Kiosk** was created, representing a temporary space for the provision of public services. Citizen Kiosks were implemented following a quick and easy procedure, allowing to strengthen the public services front-office in atypical circumstances, such as the pandemic.

The **Intranet.Gov** was implemented as a platform for horizontal communication in public administration and to support the activities of services and workers in new working environments, like teleworking.

The **Citizen Map** which provides users with georeferenced information for all public services and also allows the user to get digital queue tickets for onsite public services was updated with the following functionality, adapting services to the COVID period:

- ensuring that there are no “open” queue tickets on the Map
- providing richer textual and graphical information to users
- targeting citizens, to help prevent crowding in on-site counters (complementing the

information available in the ePortugal portal, so to provide more detailed information)

- *click to action* for accessing services through digital channels
- *click to action* for obtaining information and formulating questions
- *click to action* for pre-scheduling services
- directing citizens to other channels – like phone and mail

There are also some ongoing initiatives worth mentioning, most noticeably the eventual use of the ATM network for registering the Digital Mobile Key to facilitate access to public services by a simplification of the digital authentication process with the Digital Mobile Key, through the use of biometrics and a QR Code.

On a different level, AMA is part of the Incentive System for Innovation in Public Management (SIIGeP), a programme which aims at enabling the innovation capacity in human resources, to improve the work environment and the development of management models. In response to the COVID-19 outbreak, through the Order No 3614-D/2020, # 11 SIIGeP was entrusted to:

- The development of guides, guidelines and other practical support instruments, including new management models and new forms of work organization, including teleworking;
- The promotion of innovative management, leadership and work organization practices, integrated into an action plan for innovation;
- The dissemination of information to the Public Administration that provides the necessary

framework for the activities of services and workers in new working environments;

- The permanent analysis of the contents made available in order to ensure their coherence, accuracy and timeliness;
- The reinforcement of remote training for the Public Administration, in articulation with universities with a specific training offer for the current context.

Responses of the Justice Area

Several initiatives were implemented by the Justice area in response to COVID-19 pandemic. They are grouped according to various areas, as presented below.

Portal

A dedicated area called “COVID-19: Measures adopted in Justice”⁷⁹ was implemented on the main page of the Digital Justice Platform. It gathers global information about the Justice services, as well as the measures adopted by the respective entities. It includes a georeferenced map depicting the closed services, suspended services and open services (updated daily). The area was launched on March 11, 2020.

Another area called “Reopening of Conservatories - Services”⁸⁰ was implemented on the main page of the Digital Justice Platform. It brings together global information on the lack of definition of the Justice services, as well as a detailed description

79 <https://justica.gov.pt/COVID-19-Medidas-adotadas-na-Justica>, last visited 11-08-2020.

80 <https://justica.gov.pt/Reabertura-das-Conservatorias-Registo>, last visited 11-08-2020.

of the services that can be performed online, in person and by telephone.

A new service enables the centralization of user's schedules.

Teleworking

Teleworking has become mandatory whenever the nature of the work allows it. Approximately, 33% of Justice public employees have been assigned to work remotely. This was made possible through the rapid assessment of remote work requirements and, subsequently, the ICT infrastructure was strengthened and the number of available computers increased; in figures, 1500 additional computers were made available for remote work. In just over a week, the ability to work remotely went from 1,000 simultaneous Virtual Private Network (VPN) users to around 5,000.

Services

- In-person assistance is limited to some urgent services. To guarantee the safety and health of the citizens and workers of the Justice services, employees will work on a rotation basis or on teleworking and the opening hours could be adjusted if needed.
- To ensure safety during isolation, the National Support Network for Victims of Domestic Violence is working, and can be contacted by SMS, phone or email.
- Documents whose validity ends between 24 February and 30 October 2020 remain valid and continue to be accepted, even after that date, as long as the holder proves that he has already proceeded to schedule the respective validation. The Citizen Card, Driving License, Criminal

Record, Certificates and Permanence Visas are thus accepted as valid for all legal purposes.

- In the courts, any procedural act is now allowed to be conducted through teleconference.
- Audience Rooms can be created by videoconference.
- Judges continue to do their normal work through their homes, where they have access to the case management system. They remain available to go to court whenever necessary.
- New dematerialized channels were created for MARL (alternative means of dispute resolution) to provide services to citizens and companies. The use of video calls, videoconferencing, e-mail and telephone is now possible for all stakeholders.
- Requests for registration and filing a hierarchical appeal against unfavourable qualification decisions can be done by email. With regard to registration procedures and acts, citizens are offered, for cases in which there is no possibility of making requests for registration online, another dematerialized service channel for registration services based on electronic mail.
- Collaboration with other government sectors was provided to design holistic responses; for example, creation of Citizen Kiosks, Citizen Card delivery centers. Some of the collaboration included defining partnership between the Ministry of Justice, the Ministry of State Modernization and Public Administration, and municipalities.
- Total dematerialization of essential services to citizens, such as the request for birth registration and the request for renewal of the Citizen Card.

- Implementing an extension of the validity period of documents expiring from February 24 to October 30 2020, including Citizen Card, Driving License, and other certificates.
- With Decree-Law no. 16/2020, of April 15, several exceptional and temporary measures were approved to make feasible and promote the practice of acts by means of remote communication, within the scope of the processes that run under judgments of peace, acts, processes and registration procedures, and procedures conducted by the National Institute of Industrial Property.

Citizen Card

In view of the forecast of around 700,000 Citizen Cards expiring between February 24 and June 30, 2020, the Ministry of Justice and AMA activated a set of initiatives to minimize the effects resulting from the measures imposed during the state of emergency (in force during the period from March 18 to May 2, 2020) and the fact that face-to-face service is being done only by appointment, with a smaller number of employees, in order to guarantee social distance and in compliance with DGS guidelines.

The plan of measures put in place on May 15, and which will continue in the coming months, aims to guarantee the flow of accumulated citizen card orders and deliveries, as well as to streamline and provide greater convenience to citizens in the renewal and delivery processes.

Briefly, the list of initiatives includes:

- *Extension of the validity period of the Citizen Card* - Citizen cards expired after February 24, remain valid until October 30, regardless of whether the citizen has already managed to schedule their renewal;

- *Creation of Citizen Kiosks for temporary delivery of Citizen Cards* - Creation of temporary delivery centers for the delivery of Citizen Cards that were issued after February 24th. This service will operate from 8am to 8pm and by appointment. The citizen will be contacted by the Institute of Registries and Notaries, by telephone, to be informed of the place / day and time of the document collection. It is planned to open 12 spaces in the municipalities with greater pressure on the delivery of the Citizen Card. This entails a partnership with AMA.
- *Scheduling a Citizen Card Request* - Reopening the scheduling service at the Justice Scheduling Platform and State Scheduling Center for accessing Citizen Card services.
- *Creation of an Exclusive Telephone Service Line for the Citizen Card* - Exclusive support line for Citizen Card services, namely on new simplified renewal processes, temporary delivery centers, scheduling, etc.
- *Renewal of the Citizen Card by SMS* - Sending an SMS to citizens who hold an expired Citizen Card and who meet the conditions for online renewal, asking them to accept to automatically renew the document. This measure covers people residing in Portugal, aged 25 or more, with no need to change data or collect biometric data, and who have indicated a mobile phone contact.
- *Online Renewal of the Expired Citizen Card* - Allow expired Citizen Card holders to apply for renewal online, either through a Creative Commons (CC) certificate or through the digital mobile key, without this possibility being prohibited by the validity of the identification document.

2020/2021 SIMPLEX Measures

The 2020/2021 SIMPLEX Program includes 14 initiatives to be implemented by the Justice area⁸¹. The initiatives are grouped in three areas and described below:

Registries and notaries area:

- Company (Empresa) Online 2.0 aims at the continued simplification of the process of setting up an online company, for example, reducing the required information and allowing interactivity between partners at the time of creation.
- BUPi (Simplified Land Registry) is a pilot project aiming to start from the buildings georeferenced in the Simplified Land Registry, to identify a batch of such buildings that meet the requirements, to assume the nature of a Land Registry.
- BUPi + Closer comprises mobile and decentralized service stations with access to portable equipment, which, in addition to the georeferenced graphic representation, also allow physical movement to terrains when their location through the maps available on the platform is not simple.
- Evolution of the “Casa Pronta” (Ready-made House) service refers to the complete dematerialization of the “Casa Pronta” process, with the final online issuance of Casa Pronta title certificate.
- Electronic Seal replaces the physical seal in the certification and signing of documents, allowing the effective dematerialization of the registration processes.

Courts and criminal investigation area:

- Dematerialization of communications between courts and health through a pilot project where requests for information between courts and health entities, within the scope of legal proceedings, will be made electronically.

⁸¹ <https://justica.gov.pt/en-gb/Noticias/Simplex-20-21-traz-novas-medidas-para-a-Justica>, last visited 10-05-2021.

- Dematerialization of requests from the courts to consult the Driver's Individual Register in relation to legal proceedings with the National Authority for Road Safety.
- Implementation of a pilot project for the dematerialization of communications for the coercive collection of court costs as well as for the communication of information on insolvencies
- Availability in the interoperability platform (iAP) for the communication of information on default in judicial proceedings.
- Digital interoperability with the banking sector for the centralization and dematerialization of information requests from the Judiciary Police to Banco de Portugal (Electronic Platform for the Registration and Transmission of Official Letters from Banco de Portugal).
- Creation of a platform for scheduling expert reports in a simplified manner, using SMS and payment by ATM reference.
- Maintenance of the information contained in the Official Lists of Judicial Administrators, permanently updated for consultation by citizens in general and the judicial system itself.
- Dematerialization of the process of seizure of illicit goods and their reversion in favor of the State.

Intellectual property area:

- Sending, through an electronic platform, orders and notifications to Industrial Property Support Offices (GAPI) and university and research institutions, to streamline and simplify the process of trademarks and patents.

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