e-CROATIA 2020 STRATEGY

CONTENT

1. Introduction

The Internet of Things[1], the vision of today, the reality of tomorrow, the fourth industrial revolution. **The goal of this Strategy is to ensure that public administration functions within the framework of the future.**

The information and communications technology (hereinafter referred to as ICT) plays the leading role in the transformation of citizens' lifestyle, thus transforming the society as a whole. ICT as a generic term encompasses various types of information and communications technologies which enable the generation, storage, processing and exchange of information.

ICT is the fundamental technology of the information society as well as the knowledge society, which have been systematically promoted and gradually built by the European Union and the rest of the world, the ultimate goal being to strengthen their role in everyday life.

New technologies enable access to information at an increasing rate of speed, at the same time enhancing their previous "analogue" principles. The development of the Internet goes parallel with the gradual elimination of geographical and linguistic barriers to communication. At the moment, it is enough to have an internet-enabled PC to access almost infinite knowledge resources, and most of the content can automatically be translated into any given language. Consequently, access to public sector information means not only greater transparency of public administration, but is also an important factor in information society development, as it enables widespread participation in the digital culture, increase of the citizens' social capital and the development of their creative competencies, thus boosting their activity and participation in public life. Furthermore, the legal and technical warranty of accessibility and re-use of public sector information in digital format impacts the competitiveness and innovation of economy by developing commercial and non-commercial products and services based on the processing of available information. The most important change in that process has been the shift of focus from the technology per se to the area of its application i.e. to the services it facilitates.

Digital implies more than just technology or content. It is about people. _Digital acquisition_ implies a broader use of the Internet and greater participation of people and companies involved in it and using it on a regular basis. For citizens this means access to a wider selection of products and services. Entrepreneurs and companies, business associations, chambers and their members are also given the possibility of better access to new markets, increase of competitiveness and productivity, and finally, the creation of new jobs. In many cases, especially for small and medium-sized enterprises, digital acquisition practically means survival in the labour market.

The potential of "the digital" for economic development and improvement of citizens' lifestyle is enormous, since everything is being recognized on an international level more and more quickly. Advanced public administrations have been exploring the ways of using this potential under their respective national circumstances.

Looking at the Croatian public sector, it is obvious that it still requires deep changes based on the application of ICT. Implemented good solutions in state administration and local self-government, chamber organisations, healthcare and education are still sporadic and isolated, indicating the

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[1] **The Internet of Things (IoT) is a concept which describes the incorporation of microelectronic circuits and programming support into devices which are not computers by nature, in such a way to ensure the possibility of interconnection and communication with other devices.**

1. Introduction

potential of "e-solutions" rather than a systematic approach to investments which could reduce the level of expenses and increase the quality of service provided to citizens and economy. In addition, e-government, e-health and overall e-business and its mobile derivatives should provide a space for innovative industrial development in the Republic of Croatia, in particular of small and medium-sized enterprises. The synergy of science, culture, technology, education and economy, which underlies advanced activities and developed economies, has not been established in Croatia and without it in a dynamic and technologically intensive sector such as ICT there can be no significant advancements, higher growth rates or new quality jobs.

Information managed by the public administration is a resource which requires efficient management. This information is a potential source of enhancement of the state administration. The use of authentic, up-to-date, networked, competently collected and processed information is the basis of efficient state governance and policy adoption based on facts. This requires not only the organisation of public registers, but also the insurance of optimum conditions and the application of the norms of governance and information sharing. Moreover, all information must be processed in accordance with security measures, taking into account privacy and confidentiality.

Owing to digital technologies, the tasks of the state can be implemented in a more efficient, personalised and participatory manner. Croatian society has been experiencing deep changes, driven by civilisation development and growing importance of the Internet and of digital technologies in social interactions. This has created a situation in which the state and its administration must keep pace with citizens and use the opportunities provided by digitisation in order to perform its tasks as efficiently as possible.

Digital reality enables a redefinition of the relationships between the government, citizens, local self-government and non-governmental organisations towards a stronger partnership, leading to the transformation of the state model to an "open public administration", which can include citizens as equal partners in decision-making processes to a higher extent, by using their knowledge and skills.

The e-Croatia 2020 Strategy (hereinafter: the Strategy) is a strategic document composed with the intention to enhance the quality of life of citizens in the Republic of Croatia by raising the competitiveness of economy with the help of information and communications technology, and using high quality electronic public services in line with the valid strategies and legislation of the Republic of Croatia, EU directives and recommendations from the profession. The purpose of the Strategy is to create strategic framework for a coherent, logical and efficient information system of the state by providing high quality and cost-effective electronic services at both national and European level. It also focuses on the insurance of interoperability between the current and the new ICT systems in public administration, including the elimination of duplicated functionalities. The realisation of its objectives will be measured on the basis of the percentage of citizens and companies using public e-services as well as the user satisfaction level. In addition, the goal of this strategic document is to provide a strategic framework as a prerequisite for using available financial resources from EU funds.

The introduction of a planned and coordinated informatisation of the activities of public entities has been given its formal shape in this Strategy, as a document on both current and planned state of ICT in Croatia which indirectly concerns other sectorial strategies and their development plans and defined innovative activities, too.

In the plan of expenses the Strategy relies on both national funds and co-financing of the European Union under the Multiannual Financial Framework for 2014-2020, and has been developed in cooperation with other ministries as well as other state and public institutions and business, academic and wider community.

1. Introduction

After a detailed overview of the current state of ICT, the Strategy defines the main objectives and resources for their implementation, as well as the activities which enable efficiency monitoring in the achievement of results. Furthermore, it emphasizes the necessity of creating an appropriate legal foundation, harmonised with social and technological changes, with a view to achieving the greatest possible performance efficiency, rationality in the use of budgetary resources and quality of service provision as the basis for informatisation of public services, and it requires updating of the Strategy in accordance with technological, organisational, sociocultural and economic changes occurring in the field of public administration.

One of the goals set during the development of the Strategy was linguistic simplicity and perspicuity for a wide audience, and a visible effort was made to avoid using professional terms or to explain them when they could not be avoided.

The entire text refers to public sector entities, since they are covered by the National Information Infrastructure Act, and they are thus obligated to implement the solutions contained herein. However, everything built on the national level is open for access to local and regional self-government bodies.

The modern environment of omnipresent smart devices, social networks, the availability of e-information, or a combination of technological capabilities and new social media practices, provides the basis for new business models in digitized public administration. With the aim of positioning citizens and businesses in the middle of the scene, public administration needs to build its business models and adjust the regulatory framework. These measures will eliminate the process, data and information redundancy. Furthermore, public administration needs to promote so-called lean e-services, as a single contact point or a service point of public administration in relations between administration and citizen, or government and economy, with maximum respect for the protection of personal data and information security. The abovementioned requires an open view of the structural reforms of the public administration, which presents an essential part of its digitization and serves as a boost for digital growth.

Digitization and interconnection of data are also changing their paradigm. Single, unbound data are becoming part of interconnected filing systems exposed to modern computer threats coming from cyberspace.2 Having said that, information i.e. cyber security is becoming an extremely important prerequisite for efficient, continuous and sustainable provision of e-services in the Republic of Croatia.

Vision

Public administration which serves citizens, business and scientific entities by using contemporary ICT technologies and innovative solutions, and as the basis of the transformation of the Republic of Croatia into a knowledge-based society.

Excellence in the provision of smart, sustainable and secure electronic public services (hereinafter: e-services) which will ensure a higher quality of life for citizens, business and scientific entities, being citizen-oriented, available at any time and place via various channels.

Mission

The preparation of the legal, organisational and technical environment as the foundation for the development of innovative e-services of a modern public administration, which encompass the provision of complete services, informatisation of business/administrative processes and uncovering

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[2] **cyberspace –** space within which electronic communication between information systems is conducted

1. Introduction

of the information of public administration through different channels available anytime, anywhere and on any device, with the aim to improve the life of its citizens, and thus raise the competitiveness of economy by supporting the development of digital economy with the aim of inclusion in the unique digital EU market.

Objectives

1. Improved business productivity of public administration through the use of ICT and new skills within public administration and toward users;
2. Enhanced quality of life of citizens through the use of e-services from efficient public administration;
3. Improved communication between citizens and state administration, and transparency of public administration through ICT use;
4. Insurance of secure environment for the provision of public administration e-services;
5. Increased competitiveness of economy through the use of public administration e-services and the digitization of business and integrated services of the chambers of commerce for the purposes of employers and companies in the segment of micro, small and medium-sized enterprises;
6. Opening up space for ICT-based innovations in public administration through the cooperation of public administration, scientific and business entities;
7. Inclusion in the European Digital Administrative Space, and
8. Insurance of access to basic registers, databases and records in electronic form, electronic submission of applications and issuance of public documents and data from basic registers, databases and records.

2. The 2020 approach

Nowadays we are witnessing the beginning of a key transformation of the relationship between the public administration service provider and the service user, the user being in the spotlight as the key factor in the process. Given that the main task of public administration is to serve citizens, this Strategy is oriented towards electronic public services as well as the requirements which must be met within the 2020 framework, related to the development of a modern, digital society which uses the potential of all the information available to the public sector.

This new approach to the development of a modern, digital society is referred to as integrated state informatisation, which means that all activities related to the implementation of information systems will be subordinated to a consistent information flow in the state. For that purpose, the Republic of Croatia has adopted the National Information Infrastructure Act as the basis for interoperability, implemented the e-Citizens system as a one-stop shop for e-services in the virtual world, and a portal providing access to public sector information.

A prerequisite for the development of e-services is the development of broadband Internet access in the Republic of Croatia, the aim being its availability across the entire Croatian territory. This Strategy will not address this issue, but will rely on the [Strategy for Broadband Development for 2016-2020](#)[3], developed by the Ministry of the Sea, Transport and Infrastructure and adopted in July 2016 by the Croatian Government.

The Strategy for Broadband Development until 2020 has the following main objectives:
- coverage with Next Generation Access Networks (NGA), which enable Internet access at a speed exceeding 30 Mbit/s for 100% of the Croatian population;
- 50% of Croatian homes using Internet access at a speed exceeding 100 Mbit/s or more.

An integral part of the Strategy for Broadband Development for 2016-2020 is the implementation of the National Programme for Backhaul Broadband Infrastructure (NP-BBI), which defines as one of its objectives the insurance of the availability of ultra-fast broadband access for the purposes of public administration bodies in targeted areas, which is a key prerequisite for the provision of quality e-services.

In this Strategy, the Government has established public policy measures, complementary with the free initiative of the private and non-governmental sectors, which have the purpose to create a social, legal and business environment which will encourage all economic operators as well as consumers to make their own business decisions and consumption decisions in line with the objectives of this Strategy.

The future development of e-public services in the Republic of Croatia will depend most on the satisfaction of their users, their support and motivation to use the e-services. Under the term "e-public service users" we subsume citizens, businesses, civil servants in the public administration who use e-services of other public authorities, bodies of local and regional self-government units and users from other states. The following criteria are taken as the modern criteria of shaping public services:

1. justified use and expediency for users;
2. fundamental change of approach to the term "service" (a service is the payment of a child benefit rather than the "submission of a request to exercise the right to a child benefit");

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[3] http://narodne-novine.nn.hr/clanci/sluzbeni/2016_07_68_1635.html

2. The 2020 approach

3. to plan services in the context of the target system as a whole, in order to avoid overlapping or parallel services with the same or similar purpose or functionality, and to use the already developed solutions;
4. to build services in the context of life events or life situations – to link and optimise processes in different bodies;
5. to shape the model of process and impact assessment in the context of the overall system and for each service separately, taking into consideration financial, temporal and social benefits for the user and the system in relation to the previous manner of performing a particular task, and
6. to build services in a secure environment which enables their smooth and continuous use without significant risks of endangering the confidentiality, integrity and availability of data and services.

Hitherto the informatisation process was characterised by partial, ad hoc solutions (silos), which met the needs of different areas of public administration, with no interoperability of the system ensured, which had negative consequences on e-service provision. Therefore, the intention of this Strategy is to establish the framework and objectives of existing and new activities of e-government, the emphasis being on user satisfaction, rationalisation of administrative procedures and the preparation and provision of modern e-services which will enable a higher quality of life and make public administration citizen-friendly.

Integrated state informatisation essentially means support for the implementation of an optimal state model by enhancing the existing and creating and developing new public services, and by monitoring and improving their quality, also considering the emerging new possibilities related to the dynamic development of digital technologies as well as the availability of content in digital form. Such informatisation aims at enabling citizens and entrepreneurs as well as public administration itself access to tools which are useful, available, safe and user-friendly, and aligned with various technologies.

From the point of view of a normal citizen, the most important aspect is the simplicity of dealing with public administration issues, including those relating to business, healthcare, job search, payment of liabilities, acquisition of knowledge and education, and the use of the resources of the cultural system. E-services should enable citizens to save time and eliminate the need to go to an office physically, unless their presence is absolutely necessary. The use of e-services should enable citizens to use public administration services regardless of their location and technology used to access the Internet (hardware, software) or the selected electronic communication channel.

Integrated state informatisation should rest on six pillars:
- logical and efficient **information flow**;
- focus on public administration **processes and services**;
- **open government – transparency, participation and cooperation**;
- **efficiency** of public spending;
- **technological neutrality** i.e. users must not be required to possess specific SW or HW solutions (see more in Chapter 6), and
- **secure environment which will enable an efficient provision of smart, sustainable and secure e-services.**

The main role of public administration is to serve citizens and entrepreneurs through efficient performance of its tasks as stipulated by law. The purpose of the Strategy is to set a framework for the construction of new ICT systems and adaptation of the existing ones, so as to make them coherent, logically connected and to have them result in user oriented services. This should apply to

2. The 2020 approach

all information systems, regardless of their place in the organisational structure of the state. Integrated informatisation stands for a comprehensive approach of the administration to the management and construction of the national information system, which will lead to creating information and communication management in the state, with the participation of all interested parties. The current legislative framework obliges public sector bodies (all bodies which are allocated salaries from the state budget or from the resources of the Croatian Health Insurance Institute) to an integrated approach in the construction of national information infrastructure. This Strategy establishes support to the connection of local and regional self-government bodies into the system of national information infrastructure.

E-services developed as a result of the implementation of IT projects must be accessible to the public via the e-Citizens system and other systems which will be established, and ensure the service quality expected by the user. They must be characterized by high accessibility, including persons with disabilities, and user support.

The creation of an integrated national information system which will manage all key processes and provide public services demands the establishment of appropriate organisational structures on all state and public administration levels. The development and maintenance of a basic set of e-services for citizens (including entrepreneurs) and the public administration itself requires an efficient cooperation between different state and public structures on both central and local level.

The introduction of ICT solutions and e-services in public administration will lead to accelerated economic growth due to increased employment of people working on the e-solutions in jobs with a high added value, due to quicker dealing with public administration as a result of its increased efficacy through the use of ICT solutions, due to a reduction in time spent by employees on the use of public administration services, and finally, due to a rise in the ICT competency level of public administration employees and users of its e-services.

The implementation of this Strategy should increase the quality of citizens' lives by decreasing the duration of administrative procedures in public administration through ICT use, by enabling remote access to public administration services via the Internet, and by encouraging participation of all social layers in the development of European digital society and in the use of the results of that development.

Alignment with EU strategies, regulations and policies refers primarily to the Digital Agenda for Europe 2020, and this Strategy represents the basic document for all applications for resources from European Structural and Investment Funds for projects related to e-services.

In order to implement those strategic objectives, it is necessary that all stakeholders cooperate, in particular: state and public administration, and local and regional self-government as the makers of policies and implementation plans; academic and scientific community which needs to assume the main role in ICT development, research and innovations even more vigorously, as well as in ensuring a sufficient number of young experts who will work on ICT tasks; chamber organisations and their members, and other businesses which will become more competitive through the application of this Strategy and innovations resulting from the implementation process; citizens as the main users of public administration services; the media as the main creators of digital content and a corrective factor which observes the implementation of the Strategy from a critical point of view, and independent experts and other persons interested in the development of the ICT sector in the Republic of Croatia.

2. The 2020 approach

Summary

In the foreseeable future, the technologies which serve as the basic infrastructures of the digital society will become even more easily available. Services will be available „always" and „everywhere", also via mobile devices, thus enabling free use of accessible content and the creation of one's own content. Electronic access to services should be understood as always available electronic communication channels, including email, text messages, telephones, mobile phones and other mobile devices.

In times when 90% of the world's population lives in areas with mobile network coverage, informatisation has become a process which increasingly impacts the life of every human being. Furthermore, it is expected that numerous smart devices will connect to the Internet, thus creating the so-called "Internet of Things". This will enable remote control, localisation and tracking of those devices, which will contribute to the enhancement of the quality of life in various areas, with solutions applicable in e.g. healthcare, energy, transport, environmental protection and recycling of products and raw materials.

Moreover, the quality and accessibility of public services in isolated and remote locations, especially on islands, has been lagging significantly behind other areas. There is a need to provide adequate services to the population, and the easiest way to do it is via the Internet. The problem of accessibility also applies to disabled persons, vulnerable and socially endangered groups, Homeland War victims and their family members, and Croatian war veterans as a particularly vulnerable group.

A successful implementation of this Strategy will create conditions for orientating complete public administration work towards its users, that is, for the enhancement of user-oriented electronic public administration in the Republic of Croatia.

3. European and national strategic context

3.1 European context

In the development of the Strategy we were guided by the guidelines imposed by the European and national strategic context as well as the legal framework on both levels.

3.1.1 European strategic context

The strategic context which determines the direction of e-government development most is the Digital Agenda for Europe.

Digital Agenda for Europe[4]

The **Digital Agenda for Europe (DAE)** is the first of seven flagship initiatives envisaged by the programme Europe 2020 strategy. The initiative was launched in May 2010, its goal being to enable the EU economy and citizens to achieve maximum benefits by using digital technologies. The DAE establishes 101 measures grouped into 7 priority areas for action at EU level.

The **Digital Single Market**[5] is the first pillar of the DAE which contains 21 measures seeking to boost Internet traffic, establish a unified framework for online transactions and to facilitate consumer protection in the digital environment. The key activity for the development of the Digital Single Market is to create cross-border public administration e-services. **The Digital Single Market Strategy**, which was adopted on 6 May 2015, through its fourth pillar anticipated to implement 16 initiatives by the end of 2016. The initiatives of the third pillar will further strengthen the electronic public administration and the digital economy.

The focus of the Digital Agenda for Europe is on the creation of the Digital Single Market, the enhancement of the framework for interoperability between ICT products and services, fostering Internet trust and security, fast and ultra-fast Internet access, research and innovation, enhancement of digital literacy, skills and inclusion, and on the ICT-enabled benefits for EU society. Therefore, the Digital Agenda for Europe is a list of objectives which should, through the use of technology, make real changes in people's lives.

In the Financial Framework for 2014 – 2020, made public by the European Commission (EC) on 6 October 2011 and adopted in December 2013, intended for the implementation of Europe 2020 strategy and its 7 flagship initiatives (including the Digital Agenda for Europe and the Innovation Union), the EU Strategy will serve as the basis for the funding of "national" and "Community" projects. Said documents clearly define the action areas which reflect the five EU targets from the Europe 2020 strategy (in the areas of employment, R&D, reduction climate change and energy sustainability, education and fighting poverty), which were meant to direct the change process, and should be translated into national targets. EU financial resources help the competent bodies in Member States to meet the Community targets set out in the Europe 2020 strategy and its flagship initiatives. The EC assesses progress made in delivering the targets of the European Digital Agenda in Member States, and presents the results within the Digital Agenda Scoreboard.

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[4] https://ec.europa.eu/digital-agenda/en
[5] https://ec.europa.eu/digital-agenda/en/digital-single-market

3. European and national strategic context

EU Action Plans

Action plans for eGovernment are political instruments for promoting the modernization of public administrations throughout the European Union. They will provide support for the coordination and cooperation between Member States and the Commission and enables joint action in the field of eGovernment.

eGovernment Action Plan 2016-2020[6]

The eGovernment Action Plan 2016-2020 was adopted in April 2016. Action plan enables the dynamic and flexible approach in order to keep the pace with the environment which is rapidly changing.

The priorities of the eGovernment Action Plan for the period 2016-2020 are:

- modernisation of public administration through ICT (digitisation of all public administration processes);
- enhancing cross-border interoperability of public administration;
- ensuring digital interaction between public administration and its users.

The scope of the Action Plan is to accelerate the coordination of modernization efforts in the public sector and resources in the field of eGovernment.
Public administrations and public institutions in the European Union should be opened, efficient and inclusive by 2020 and to provide personalized, customized digital public services across borders and from one end to the other to all citizens and businesses in the EU. Innovative approaches are used to create and provide better services to meet the needs and requirements of citizens and businesses. Public administrations are using the opportunities provided by the new digital environment to facilitate interaction with stakeholders and other public administrations.

eGovernment Action Plan 2011 - 2015[7]

The EC has adopted the eGovernment Action Plan 2011-2015, which supports the new generation of eGovernment services and identifies four political priorities based on the Malmö Declaration[8]:

1. Empower citizens and businesses;
2. Reinforce mobility in the Single Market;
3. Enable efficiency and effectiveness, and
4. Create the necessary key enablers and pre-conditions, technical and legal, to make things happen.

The eGovernment Action Plan 2011-2015 is the basis for the development and implementation of large multi-scale projects, which serve to create innovative cross-border solutions such as: STORK[9], e-SENS[10], SPOCS[11], PEPPOL[12], epSOS[13] and eCODEX[14], the results of which are already in use or will be used in further development of eGovernment in Croatia.

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[6] http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=15268
[7] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0743:FIN:EN:PDF
[8] The Malmö Ministerial Declaration was adopted at the Ministerial Conference in November 2009.
[9] Secure idenTity acrOss boRders linKed, the purpose is to create an interoperable cross-border system of electronic identity verification across the EU in such a way that the national electronic identity system may be used in all Member States
[10] Electronic Simple European Networked Services, the purpose of the project is to consolidate solutions prepared in previous projects, and to create a universal solution applicable in various areas of eGovernment

3. European and national strategic context

The eGovernment Action Plan 2011-2015 establishes that, for the purpose of promoting smart, sustainable and inclusive economy, Member States have to:

- provide **key cross-border services online**, enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work, reside and retire anywhere in the European Union, and
- ensure that at least **50% of EU citizens and 80% of EU enterprises** use eGovernment services.

In addition, key enablers necessary for the achievement of the eGovernment Action Plan were also established, in particular:

- Electronic Identification (eID),
- Electronic Documents (eDocuments),
- Authentic Sources,
- Electronic Safe (eSafe), and
- Single Sign On (SSO).

The DAE establishes that Member States have to promote innovative, cross-border eGovernment solutions, particularly:

- **to ensure full interoperability of eGovernment services**, surpassing legal, organisational, technical and semantic barriers, and to promote the introduction of the latest version of IPv6 Internet Protocol (IPv6 – Internet Protocol version 6),

- **to ensure that points of single contact function as fully fledged eGovernment centres** and provide services beyond requirements covered by the Services Directive, and

- **to ensure a common list of key cross-border services** which correspond to well defined needs – enabling entrepreneurs to set up and run a business anywhere in Europe independently of their original location, and allowing citizens to study, work, reside and retire anywhere in the EU.

Results of the eGovernment Action Plan 2011-2015 show that the Action Plan had a positive impact on the development of eGovernment at the European level and at Member State level. It contributed to the compliance of the national strategies of eGovernment and exchange of best practices and interoperability solutions between Member States. In particular, it led to the development of technological solutions which are crucial for improving access to the public services and their use. However, citizens and companies still do not enjoy all the advantages of digital services that should be easily available throughout the EU.

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[11] Simple Procedures Online for Cross-Border Services, the purpose of the project was to introduce simple cross-border services (implemented in the period 2009 – 2012)

[12] Pan-European Public Procurement Online, the purpose of the project is to facilitate public procurement (eProcurement) for European operators

[13] Smart Open Services for European Patients, the purpose is to ensure cross-border exchange of medical data (ePrescription, Patient Summary) between health care systems of different Member States

[14] Justice Communication vis Online Data Exchange, the purpose of the project is to ensure access of citizens and businesses to judiciary in other Member States and to eliminate barriers in EU eJustice

3. European and national strategic context

eGovernment performance across policy priorities

		EU28+ biennial score 2015*	Country biennial score 2013**	Country biennial score 2015*
USER CENTRICITY	Overall Scores	77	54	60
	Online availablity	80	53	61
	Usability	83	59	65
	Ease of use	60	54	55
	Speed of use	57	51	51
TRANSPARENT GOVERNMENT	Overall Scores	55	40	48
	Service delivery	47	25	37
	Public organisations	64	55	58
	Personal data	55	41	49
CROSS BORDER MOBILITY	Overall Scores	55	34	39
	Online availablity	56	27	33
	Usability	63	61	61
	Ease of use	45	36	41
	Speed of use	41	28	36
KEY ENABLERS	Overall Scores	54	7	16
	eID	61	12	29
	eDocuments	61	6	23
	Authentic sources	49	4	21
	eSafe	43		
	SSO	63	14	14

INSUFFICIENT — MODERATE — FAIR — GOOD (0, 25, 50, 75, 100)

Figure 1 Overview of eGovernment in Croatia for the period 2013-2015

A vision for public services

The European Commission published the document "A vision for public services"[15] with the aim of outlining the long-term vision for a modern and open public sector and the way public services may be delivered in an open government setting, enabled by ICT. In other words, the aim is to prepare a framework for the delivery of unambiguous public services to citizens and businesses, which can be used at any moment of time.

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[15] http://ec.europa.eu/information_society/newsroom/cf/dae/document.cfm?doc_id=3179

3. European and national strategic context
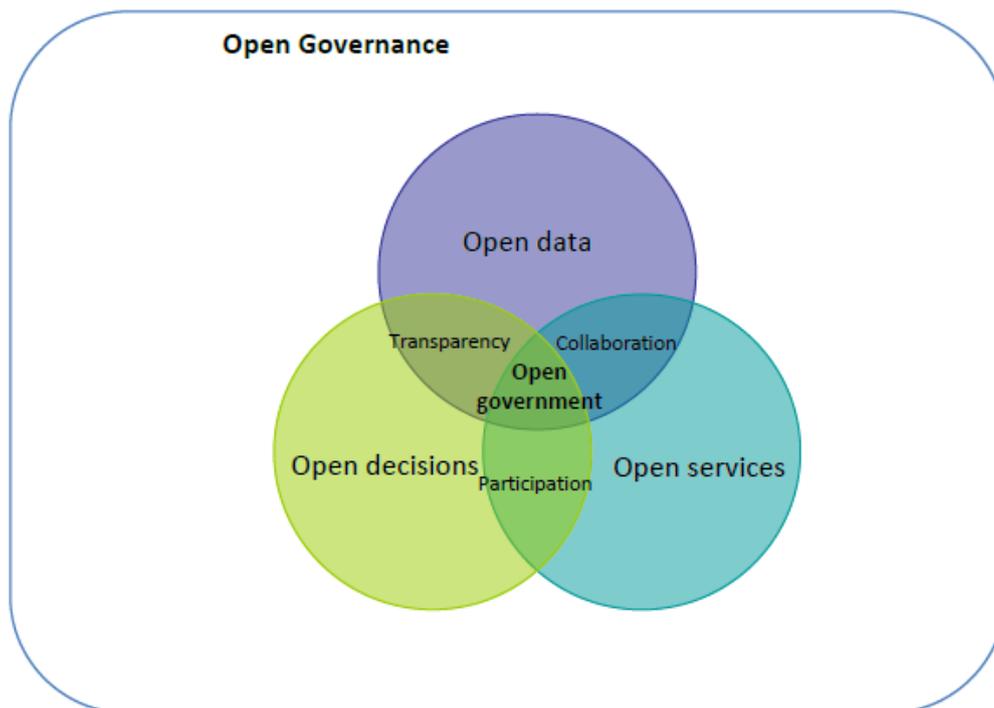
Figure 2 Overview of open government

Cloud computing

In September 2012, the European Commission adopted the strategy "Unleashing the Potential of Cloud Computing in Europe". Guidelines for removing obstacles to the free flow of data across borders (https://ec.europa.eu/digital-single-market/en/towards-thriving-data-driven-economy). It is the result of an analysis of policies, regulatory and technology landscapes and of a wide consultation with stakeholders, to maximise the potential offered by cloud computing. The document represents a political commitment of the Commission and serves as a call on all stakeholders to participate in actions. Another important point of reference are the Commission studies on the economic impact of cloud computing in Europe, with the latest one published only recently (https://ec.europa.eu/digital-single-market/en/news/measuring-economic-impact-cloud-computing-europe). The latest study states, among other things, that a wide application of cloud computing represents a crucial driver of economic growth in the EU by increasing the GDP and creating new jobs.

3.1.2 European legal framework

Directive 2006/123/EC on services in the internal market[16]

Directive 2006/123/EC on services in the internal market, which stipulates in Article 8 the obligation of the development of e-procedures in order to establish a business.

Directive 2014/55/EU on e-invoicing in public procurement[17]

E-invoicing should serve to fulfil the vision of the full digitisation of the public procurement process, so-called 'end-to-end e-procurement'. This is an important step towards paperless public administration and offers the potential for economic as well as environmental benefits.

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[16] http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=celex%3A32006L0123

[17] http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX%3A32014L0055

3. European and national strategic context

Regulation on electronic identification and trust services for electronic transactions in the internal market[18]

Regulation (EU) N°910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation) was adopted on 23 July 2014 and represents the regulatory framework for ensuring secure and effective interactions between businesses, citizens and public administration. The Regulation ensures the key requirements: electronic identification, authentication, signature, verification and guarantee of the trustworthiness of the content of electronic documents.

Directive 2014/24/EU on public procurement[19]

Electronic means of information and communication will become standard and mandatory means of communication and information exchange in public procurement procedures, and they increase the possibilities of businesses in the internal market to participate in public procurement procedures. In that regard, all procurement procedures conducted by a central purchasing body are performed using electronic means of communication (Article 37(3) of Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement).

A full e-procurement system will have had to be established without exception by 18 October 2018, and central purchasing bodies will have had to establish it by 18 April 2017.

Directive 2011/24/EU[20] on the application of patients' rights in cross-border healthcare

This Directive of the European Parliament and of the Council aims to establish rules for facilitating access to safe and high-quality cross-border healthcare in the Union and to ensure patient mobility, and to promote cooperation on healthcare between Member States, whilst fully respecting the responsibilities of the Member States for the definition of social security benefits relating to health.

Directive on the re-use of public sector information

Since public administration information contains a significant economic potential, Directive 2003/98/EC[21] of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information and Directive 2013/37/EU[22] of 26 June 2013 amending Directive 2003/98/EC regulate the issues of the re-use of information and documents in possession of public administration bodies so as to ensure the creation of products based on public administration information, facilitate cross-border use of information and enable competition on the European market.

Directive 2016/2102/EU of the European Parliament and of the Council on the accessibility of the websites and mobile applications of public sector bodies[23]

The Internet is the key manner of access and use of information and services. Web accessibility is achieved by applying specific rules and techniques during the development of the websites of public bodies, so that all users can access and use services more easily, with a special emphasis on disabled persons.

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[18] Regulation on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC

[19] http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=CELEX:32014L0024

[20] http://eur-lex.europa.eu/legal-content/HR/TXT/PDF/?uri=CELEX:32011L0024&from=HR

[21] http://eur-lex.europa.eu/legal-content/HR/TXT/?uri=celex:32003L0098

[22] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32013L0037

[23] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2016.327.01.0001.01.ENG&toc=OJ:L:2016:327:TOC

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The Directive was passed on 2 December 2016, and entered into force on 22 December 2016. Member States have 21 months (until 23 September 2018) to transpose it into their national law.

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). The Directive establishes the Infrastructure for Spatial Information in the European Community which is based on the national infrastructures for spatial data of the Member States. Spatial data are accessible through standardised network services.

Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union[24]

This Directive establishes measures directed at achieving a high common level of security of network and information systems in the EU, in order to improve the functioning of the internal market, including the obligations to adopt national strategies on the security of network and information systems, creation of Cooperation Groups for the purpose of supporting and facilitating strategic cooperation and information exchange between Member States, and developing networks of computer security incident response teams. In that sense, Member States will conform to formal[25] and informal procedures (Traffic Light Protocol) in the course of information exchange.

The general objective of the Directive is to enhance overall EU cyber security through the improvement of national possibilities in the area of cyber security, strategic cooperation and information exchange among Member States, and the establishment of security culture in all the sectors of vital importance for the economy and the society which rely on information and communication technologies.

The Directive was adopted on 6 July 2016, and entered into force on 26 December 2016. Member States were given 21 months to transpose it into national law.

General Data Protection Regulation (GDPR) – REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC - with this Regulation, the European Commission seeks to harmonise proceedings related to personal data protection within the Union.

3.2 National context National strategic context

In order for the Republic of Croatia to reach the European level of public administration services in terms of quality, sectorial strategies have been developed for individual sectors in which the introduction of information and communication technology is strongly represented. However, the basic document for the development of public administration as an administration capable of responding to the demands of the society as a whole, i.e. of its citizens and businesses, is the **Strategy of Public Administration Development in the Republic of Croatia for the Period 2015-2020** (hereinafter: Public Administration Strategy), which is adopted by the Croatian Parliament at its session on 12 June 2015.

The Public Administration Strategy is a comprehensive document which represents a framework for public administration development, and is focused on the enhancement of administrative capacities and better organisation of public administration. As a strategically important area, modernisation of

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[24] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32016L1148
[25] http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013D0488

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public administration, its complete professionalization and provision of fast and reliable public services are necessary integral elements of a favourable entrepreneurial environment and a presupposition for ensuring a better standard for all citizens. Such an administration also has to reflect the harmonisation of the Croatian legal system with the European one as well as the acceptance of European administrative norms.

The Public Administration Strategy concerns public administration bodies. The principles underlying the functioning of public administration are reliability and predictability (legal security), openness and transparency, responsibility, efficiency and effectiveness. All the principles above are supported by the introduction of the information and communication technology in public administration work, which is especially emphasized in the Public Administration Strategy **in the context of the regulation of the public administration system through the informatisation of business processes and administrative procedures**, but only after their legal and operational regulation so as to standardise procedures and eliminate all unnecessary procedures. The next objective which includes the use of ICT is to ensure **more channels for communication with the public administration**, and thus to ensure greater accessibility of public administration services for its users. Through the development of electronic services the public administration becomes available to everyone 24/7 i.e. 24 hours a day, 7 days a week. Finally, the Public Administration Strategy contains a measure concerning the **standardisation of electronic services** as a precondition for ensuring easier use of e-services and facilitating the development of new services in the public administration.

Important determinants of the public administration reform, which refer to the creation of the environment for the development of innovative solutions in public administration, are the education of public administration employees in the field of ICT and the creation of one-stop shops in the real world, where citizens will be instructed on how to work with systems such as eCitizens. Education of public administration employees to work on **One Stop Shops** and to train the citizens to use e-services is an integral part of the Strategy of Public Administration Development in the Republic of Croatia for the Period 2015-2020.

Key Strategies with which the e-Croatia 2020 Strategy is aligned are:
1. **the National Cyber Security Strategy (NCSS)** and
2. **the Strategy for Broadband Development in the Republic of Croatia 2016-2020**

The National Cyber Security Strategy addresses in particular the area of protection, recognizing that the security of cyber space represents joint responsibility of all segments of the society. The Strategy was adopted in order to implement actions aimed at enhancing the entire society in the field of cyber security in a systematic and coordinated way. By building a safe cyberspace the market potential of the information society will be realized in full.

In the **Strategy for Broadband Development in the Republic of Croatia 2016-2020,** the Croatian Government established that the development of broadband Internet infrastructure and services in Croatia, at a speed exceeding 30Mbit/s, is one of the preconditions for the development of a modern economy, so the adoption of this Strategy provide a strong political and operational incentive to the creation of conditions for accelerated development of broadband Internet access in Croatia and to reaching the level of its availability and use of at least the EU average by the end of 2020.

Open Government Partnership[26] is a multilateral initiative that aims to ensure concrete progress in the area of transparency and openness of public authorities, inclusion and empowerment of citizens and civil society, the fight against corruption and the use of new technologies to improve the quality

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[26] https://udruge.gov.hr/partnerstvo-za-otvorenu-vlast-271/271
https://vlada.gov.hr/otvorena-vlada/205

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of services that public administration provides to citizens. The Open Government Partnership initiative is based on a partnership of the state, civil society organizations, businesses and citizens which aims at strengthening the openness, transparency and citizen participation in the work of public authorities. Accordingly, the action plan for implementation of the Open Government Partnership in the Republic of Croatia for the period 2014th-2016th year was made with measures that envisage the opening and publication of data from public registers on the website and related portals, in particular through measures of proactive disclosure and opening data.

National Digital Economy Council (hereinafter Council), founded in June 2015, aims to establish an active partnership with all relevant stakeholders in the development of the digital economy, through defining the objectives and priorities for the creation of a digital single market. The Council has a role of an advisory body to the Croatian Government regarding the transformation processes of the economy through the development of digital technologies. The Council has been envisioned as a strategic partnership forum between the stakeholders of the digital ecosystem, chaired by a representative of the Ministry of Economy, Entrepreneurship and Crafts and is comprised of entrepreneurs and representatives of different educational institutions, professional associations, non-government organizations and public authorities. The Council's role shall be a joint endeavour of all relevant stakeholders in defining the **Digital Economy Strategy** for the Republic of Croatia, as well as the harmonization of national priorities in the development of the digital economy, the identification of the advantages and opportunities of a digital single market, the definition of the relevant activities progress and the monitoring and assessment of Strategy's implementation impact.

Nowadays almost every sectorial strategy touches on the issues of information and communications technology, and each stresses the importance of its introduction for meeting objectives and introducing electronic services in its field:

1. The National Strategy of Healthcare Development for the Period 2012-2020[27] defines priority objectives and key measures for the development of the health sector in Croatia in the period until 2020, and was adopted by the Croatian Parliament on 28 September 2012. The Strategic Plan of eHealth Development (in development) operationalises activities relating to Priority 1 "Informatisation and eHealth Development", defined in the National Healthcare Development Strategy 2012.-2020.,
2. Strategy of Protection, Preservation and Sustainable Economic Use of Cultural Heritage in the Republic of Croatia for the Period 2011-2015[28] and the National Programme for the Promotion of Audio-Visual Works 2010-2014[29], as well as the Strategy of Cultural Heritage Digitisation 2020, which will define the ways and rules of digitising museum, archival, library and audio-visual material according to the standards of the European digital library Europeana,
3. The State Property Management Strategy for the Period 2013-2017[30] establishes the need to develop a comprehensive and unified information system which will ensure the information necessary for inspection, supervision of the current state, and faster and better quality decision making on state property management, consequent interlinking of registers and establishment of e-services,
4. Strategic plan of the Ministry of Construction and Physical Planning for the Period 2016.–2018.[31],
5. Strategic Plan of the Croatian Institute for Spatial Development for the Period 2016-2018[32],

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[27] https://zdravlje.gov.hr/UserDocsImages/dokumenti/Programi,%20projekti%20i%20strategije/Skracena%20Nacionalna%20strategija%20razvoja%20zdravstva%20-%20HRV%20-%20za%20web.pdf

[28] http://www.min-kulture.hr/userdocsimages/bastina/STRATEGIJA_BASTINE_VRH.pdf

[29] http://www.havc.hr/file/publication/file/nacionalni-program-razvoja-audiovizualne-industrije.pdf

[30] http://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_76_1532.html

[31] [31] http://www.mgipu.hr/doc/Onama/Strateski_plan_MGIPU_2016-2018.pdf

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6. The Strategy of Education, Science and Technology[33], adopted by the Croatian Parliament on 17 October 2014, envisages measures based on ICT on all levels and in all types of education (e.g. for the development and expansion of eLearning) and in the field of science and technology (e.g. establishment of data services, including digital repositories to enable efficient data collection and processing, and to ensure permanent and reliable storage and access to research results). Open educational contents and aids with free access will be developed and organised,

7. The Croatian Tourism Development Strategy until 2020[34] emphasizes the need to shift towards electronic media, both to sell services and as part of the tourist offer,

8. The Strategic Plan of the Ministry of Veterans' Affairs for the Period 2017-2019[35] defines as one of its main objectives the development of strategic initiatives for the improvement of the quality of life of Croatian war veterans and victims of the Homeland War and their family members, and stresses the importance of the application of ICT, especially the need to prepare ICT applications for the Homeland War veterans as well as to strengthen the capacities of state and public administration.

9. The Strategy for Broadband Development in the Republic of Croatia 2016-2020[36]and the Implementing Plan for the Strategy 2012 - 2013[37],

10. The National Strategic Plan for Aquaculture Development for the Period 2014-2020[38] states the need to maintain the geographic information system in fisheries,

11. The Water Management Strategy[39], which notes that the Waters Act prescribes the establishment of a unified information system for water management,

12. The Rural Development Programme 2014-2020[40] emphasizes the need for development of ICT infrastructure to support rural development,

13. The Phytosanitary Strategy 2013-2016 Development Strategy of the National Plant Health Service[41] emphasizes the need for a further development of the Phytosanitary Information System – FIS,

14. According to the Croatian Qualifications Framework (OG 62/2013), the MoLPS is in charge of:
    - developing a system for collecting information on current and future needs of the labour market and the competences required,
    - participation in the development of strategic foundations and development analyses of the CQF for the purpose of developing employability,
    - building the competitiveness of economy,
    - developing analytical foundations and methodology for the development of occupational standards, and
    - monitoring the recruitment of persons with acquired qualifications.

15. The Long-Term Armed Forces Development Plan handles in a special chapter the topic of the equipment and modernisation of the information and communications system with an emphasis on interoperability according to NATO standards,

16. In the area of construction, the Croatian Spatial Development Strategy[42] was adopted by the Croatian Parliament in 1997. The Decision on Amendments to the Croatian Spatial

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[32] http://www.hzpr.hr/UserDocsImages/pdf/Strateski%20plan_2016_2018_HZPR.pdf

[33] http://narodne-novine.nn.hr/clanci/sluzbeni/2014_10_124_2364.html

[34] http://www.mint.hr/UserDocsImages/130426-Strategija-turizam-2020.pdf

[35] https://branitelji.gov.hr/UserDocsImages/AM2017/STRATE%C5%A0KI%20PLAN%202017.%20-%202019..pdf

[36] http://narodne-novine.nn.hr/clanci/sluzbeni/2016_07_68_1635.html

[37] http://www.mppi.hr/UserDocsImages/VRH-Provedbeni-program-BB-Strategija2011.pdf

[38] http://www.mps.hr/ribarstvo/UserDocsImages/NSPA%20Programska%20polazi%C5%A1ta%20i%20ciljevi.pdf

[39] http://www.voda.hr/sites/default/files/dokumenti/strategija_upravljanja_vodama.pdf

[40] http://www.mps.hr/ipard/default.aspx?id=129

[41] http://www.mps.hr/UserDocsImages/Strategije/2014/Fitosanitarna%20Strategija%202013.%20-%202016.%20-%20Strategija%20razvitka%20nacionalne%20slu%C5%BEbe%20za%20biljno%20zdravstvo.pdf

[42] http://www.mgipu.hr/doc/StrategijaRH/Strategija_I_II_dio.pdf

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        [Development Strategy](#)[43] was passed in 2013. A special chapter is dedicated to the introduction of the an information system for physical planning and spatial development, with an emphasis on the introduction of telecommunications and IT in order to achieve the desired changes in rural space,

17. The [Judicial Reform Strategy for the Period 2013-2018](#)[44] includes the field of utilising the potential of modern technology, and the activities of the national Strategy are aligned with the Multiannual European e-Justice Action Plan 2014 – 2018 (2014/C 182/02),

18. The [Strategic Plan of the Ministry of Environment and Energy for the Period 2017–2019](#)[45] stresses the need to develop environment, weather and climate monitoring systems connected with the European Environmental Agency (EEA), the European Environment Information and Observation Network (EIONET) and meteorological observation systems on European and international level (EUMETSAT, ECMWF, EUMETNET, GEO). The 2009 [Sustainable Development Strategy](#)[46] also emphasizes the need to introduce an information system, as well as the 2005 [Waste Management Strategy of the Republic of Croatia](#)[47], which perceives the need to develop an environmental information system,

19. The [Croatian eBusiness Development Strategy for the Period 2007-2010](#)[48] of the Ministry of Economy, Entrepreneurship and Crafts is a document which considers electronic business in relation to the competitiveness of economy. A Strategy aimed at ensuring the implementation of laws in a new, virtual dimension of the society, in line with legal practice in the real world, is in the process of preparation. A public discussion on the Draft Strategy is expected by the end of 2015,

20. The [Strategic Plan of the Ministry of Public Administration for the Period 2015-2017](#)[49] establishes strategic objectives from this domain, the most important ones being: to enable systematic support in developing user-oriented electronic services of the public administration, to ensure an optimized development of computer infrastructure through the adoption and implementation of the policy of managing ICT property owned by the Republic of Croatia («public sector cloud» strategy), to establish a system for monitoring projects in the public sector, to establish electronic data exchange between public administration registers, to enable the use of joint interoperable solutions on EU level, to apply electronic identities in electronic public services, to establish a support system for the re-use of public information,

21. The Ministry of Finance has two important sectors. Within the [Tax Directorate Strategy for the Period 2016-2020](#)[50], the Tax Directorate emphasizes the importance of further expansion and improvement of e-business through the development of e-services and improvement of communication with tax payers for the achievement of its strategic objectives. At the same time, the Customs Directorate has adopted the [Business Strategy for the Period 2017 - 2020](#)[51], which also touches on the issues of modernisation and informatisation,

22. The [Strategic Plan of the Ministry of Labour and Pension System for the Period 2015–2017](#)[52],which emphasizes the need to enhance business operations through the application of modern IT solutions,

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[43] http://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_76_1533.html

[44] http://narodne-novine.nn.hr/clanci/sluzbeni/2012_12_144_3085.html

[45] http://www.mzoip.hr/doc/strateski_plan_ministarstva_zastite_okolisa_i_energetike_za_radoblje_2017-2019.pdf

[46] http://narodne-novine.nn.hr/clanci/sluzbeni/2009_03_30_658.html

[47] http://narodne-novine.nn.hr/clanci/sluzbeni/289920.html

[48] http://www.mingo.hr/public/trgovina/Strategija_razvitka_e-poslovanja_u_RH_u_razdoblju_2007_-_2010.pdf

[49]https://uprava.gov.hr/UserDocsImages/o_ministarstvu/2014/Strate%C5%A1ki%20plan%20Ministarstva%20uprave%20za%20razdoblje%202015.-2017.%20godine.pdf

[50] https://www.porezna-uprava.hr/HR_o_nama/Strategije/StrategijaPorezneUprave2016_2020%20FINALNO.pdf

[51]https://carina.gov.hr/UserDocsImages//4626//Poslovna%20strategija%20Ministarstva%20financija,%20Carinske%20uprave%20u%20razdoblju%20od%202017.-2020..pdf

[52] http://www.mrms.hr/wp-content/uploads/2014/12/strateski-plan-2015-2017.pdf

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23. The [National Cyber Security Strategy](#) (NCSS)[53] which ensure the implementation of laws in a new, virtual dimension of the society, in line with the legal practice in the real world,
24. The [Maritime Development and Integral Maritime Policy Strategy of the Republic of Croatia for the Period 2014-2020](#)[54] (OG 93/14) clearly recognizes the importance of the development of electronic public services as a precondition for increasing the efficiency of maritime administration and strengthening the competitiveness of the entire economy,
25. The [Strategy of Electronic Public Procurement Development in the Republic of Croatia 2013-2016](#)[55],
26. [The Strategy of Official Statistic Development in the Republic of Croatia 2013-2022](#)[56], which directs the operation of the statistical system to achieve the most important general and specific objectives, but at the same time serves for institutional representation to the citizens and public institutions,
27. The [Strategic Plan of the Ministry of Culture 2015-2017](#)[57], which envisages the establishment of a national information system which will enable integrated search of and access to digital cultural heritage, aggregation of metadata and interoperability of systems used in individual areas of activity, and
28. The Development Strategy of the CCE 2017-2022 defines the digital transformation of the Croatian Chamber of Economy as the largest national organisation supporting entrepreneurship for the purpose of creating more favourable business conditions in the Croatian economy and creating added value by connecting to the national ICT infrastructure and enabling easier use of services provided on the basis of its public powers as well as other services designed to facilitate business, especially for small and medium-sized enterprises.

The Croatian Interoperability Framework was developed in accordance with the European Interoperability Framework 1.0, i.e. in line with the version EIF 1.0, and in its subsequent development, in all its actions, account will be taken of the principles of the European Interoperability Framework.

Within the framework of Smart Specialisation Strategy (S3), in addition to 5 selected thematic priority areas for investments in RDI (Health and quality of life, Energy and sustainable environment, Transport and mobility, Security and Food and bio-economy) Croatia has identified two cross-cutting themes able to create the biggest added value and foster the emergence of new economic activities, rising of the productivity of the Croatian economy and the creation of new and sustainable job opportunities. Because of its characteristics and role in further technological development, ICT was selected as S3 cross-cutting theme with the aim to further develop particular areas of application within the framework of 5 defined thematic priority areas and 13 sub-thematic priority areas. Special attention will be given to those projects under the 5 thematic priority areas which incorporate elements of ICT.

3.2.2 National legal framework

National Information Infrastructure Act (OG 92/14)

The Croatian state administration has continuously for a longer period now been working on the informatisation of all business and administrative systems in such a way that each institution has

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[53] http://narodne-novine.nn.hr/clanci/sluzbeni/2015_10_108_2106.html

[54] http://narodne-novine.nn.hr/clanci/sluzbeni/2014_07_93_1879.html

[55] http://www.javnanabava.hr/userdocsimages/userfiles/file/STRATE%C5%A0KI%20DOKUMENTI/Strategija%20e-nabave.pdf

[56] http://narodne-novine.nn.hr/clanci/sluzbeni/2013_06_69_1364.html

[57] http://www.min-kulture.hr/userdocsimages/FINANCIRANJE/strateski%20plan%20web_2015-2017_SP%20MK%20-%20dopunjen.pdf

dealt with the scope within its competence. Consequently, individual solutions have been developed and a silo architecture created i.e. each institution has developed its own identification and authentication system, closed its business and administrative systems, and introduced informatisation within its specific scope. Anything outside that system had to be supplied in such a way that citizens were the physical "link" between systems i.e. they themselves had to go to one institution to get written documents from its public registers in order to deliver them to another institution. This was in spite of the fact that the 1993 State Administration System Act stipulated in Article 87 that "…during the resolution of administrative matters, parties in proceedings must not be required to supply certificates of the facts of which state administration bodies, bodies of local self-government and government units or legal persons vested with public authority keep official records. Such certificates must be obtained ex officio. Article 47 of the General Administrative Procedure Act stipulates that "…The official person shall ex officio obtain data on the facts the official records of which are kept by the public authority conducting the proceeding, or another public authority or a court."

Bearing in mind that, in spite of the existing base in legislation, the obligation of obtaining documents from other records was being avoided by indicating to users that obtaining documents ex officio would take a long time, the National Information Infrastructure Act was developed, with the aim to obligate all institutions to sharing data, in accordance with regulations relating to personal data protection and security.

The National Information Infrastructure Act (OG 92/14) (hereinafter: the Act) was adopted by the Croatian Parliament in July 2014, as a response to the need to change the functioning of public administration and its relation towards citizens and businesses, and with the aim to ensure e-public services for citizens and businesses which are based on an integrated national information system.

The reasons behind the Act are as follows:
- With this Act, the Croatian Government has created preconditions for giving life to the vision of a modern public administration based on a modern information and communications technology, and ensured the transition to a new generation of open, adjustable and interactive administration oriented towards providing advanced user-oriented services;
- The application of the provisions of this Act will accelerate the accomplishment of the objectives related to the development of a new public administration, set by the Croatian Government Programme for the Term 2011-2015, and
- The creation of a reliable, open, transparent and user-friendly administration, which is especially important in light of the fact that the Republic of Croatia functions as part of the European Union system.

The Act refers to all institutions for which funds for salaries are allocated from the state budget or the resources of the Croatian Health Insurance Institute. It stipulates the rights, obligations and responsibilities of said bodies related to the establishment, development and management of the system of national information infrastructure, establishment and management of the public registers system, and conditions which the national information infrastructure must ensure in relation to public registers, as well as the use of a joint base for a safe data exchange within the system of national information infrastructure, a joint identification and authentication system, and a single point of interaction with citizens and other users.

The Act resolves three **key problems of the state informatics**:

1. competence for the management and coordination of the development of eGovernment, including the development of the national information infrastructure, so as to make it function as a unified system of service provision for citizens and businesses,

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2. creation of a virtual one-stop shop, and
3. obligation to use data from base registries for the purpose of lightening the administrative burden on citizens, that is, of sparing them of the physical carriage of documents between institutions, i.e. implementation of the 'only once' principle.

1. Competence for the management and coordination of eGovernment development
- The Croatian Parliament adopted the Act for the purpose of regulating the field of the national information and communications infrastructure in such a way that it functions as a unified system for the provision of services to citizens and businesses;
- The Act stipulates the rights, obligations and responsibilities of competent public sector bodies with regard to the establishment, development and management of the system of national information infrastructure, conferring the key role to the central body competent for e-Croatia activities,
- Introduction of the ProNII Register (*Croatian: ProDII*), for the entry of all IT projects conducted by public sector bodies for the purpose of coordination and rationalisation of investments in the national information infrastructure.

2. Virtual one-stop shop
- The State Administration System Act and the General Administrative Procedure Act stipulate that civil servants are obligated to obtain ex officio the data of which state bodies keep official records, so a one-stop shop is established to ensure the availability of all data required for the resolution of cases in the state;
- A virtual one-stop shop is an eCitizens system, which consists of the Central Government Portal, National Identification and Authentication System, Personal User Box, and the eBusiness system intended for businesses. The Act stipulates that every e-service must be in the system of this virtual one-stop shop.

3. Obligation to interlink registers – 'only once' principle
- Paperless state consists in a one-stop shop which connects register systems which ensure the availability of data and thus ease the administrative burden on citizens, as they do not need to carry documents from one institution to another, in the sense that data are provided only once, in digital form. For the purpose of ensuring an overview of the availability of data i.e. of possible ways to procure/receive data from different public registers, a public register called the Metaregister was established. The Metaregister also represents a communication tool for submitting requests and granting access to data, and for reporting envisaged changes in the national system of registers.
- The interlinked registers are civil registers, Citizenship Register and Electoral Register. Documents can be issued in any registry office for any registration district, and access to the civil registers is enabled through the eCitizens system.

Decree Establishing the Public Register for the Coordination of National Information Infrastructure Projects (OG 134/14, 40/16)

In November 2014, the Croatian Government adopted the Decree Establishing the Public Register for the Coordination of National Information Infrastructure Projects (Public Register ProNII).

The Public Register ProNII was established for the purpose of rationalisation, steering of development and coordination of all activities and projects related to the application of national information infrastructure, simultaneously increasing the quality of public services and preventing the planning and implementation of the equal or similar projects in the public sector.

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National Information Infrastructure Council (OG 41/16)

By a decision of the Croatian Government, the **National Information Infrastructure Council** was established (41/16) for the purpose of monitoring and coordinating the development of the national information infrastructure and reporting to the Croatian Government. The tasks of the Council are to monitor implementation and give recommendations for investments in information technologies, and to propose measures and activities for improving investments, to monitor the IT public procurement policy, to monitor the implementation of NII projects and give recommendations for the improvement and further development of eGovernment, to encourage research and development in the IT field and to assess the results achieved.

Decree on organizational and technical standards for connection to national information infrastructure (OG 103/15, 40/16)

In September 2015, the Croatian Government adopted the Decree on Organizational and Technical Standards for Connection to National Information Infrastructure.

The Regulation specifies the organizational and technical standards for connecting to the national information infrastructure, policies and activities necessary for the launch, implementation, development and monitoring of projects related to the national information infrastructure, management, development and other elements necessary for the operation of the state information infrastructure.

The Regulation also arranges a way of connecting to the system of central government portals, national identification and authentication system and the user box, and determines the structure, content, method of use and conditions for the records of public registers in the Metaregister, and defines the service provider on the principle of the Shared Services Centre for the purposes of public sector bodies (see more in section 7.5.2).

Information Security Act (OG 79/97)

This Act defines the term 'information security', information security measures and standards, areas of information security and competent bodies for the adoption, implementation and supervision of information security measures and standards. The Act applies to state bodies, bodies of local and regional self-government units and legal persons vested with public powers, which use classified and unclassified data in their scope.

Electronic Communications Act (OG 73/08, 90/11, 133/12, 80/13 and 71/14)

This Act regulates the area of electronic communications, in particular the use of electronic communications networks and provision of electronic communications services, provision of universal services and protection of the rights of service users, construction, setup, maintenance and use of the electronic communications infrastructure and related equipment, competition requirements and rights and obligations of participants in the market for electronic communications networks and services, effective management of the radiofrequency spectrum and address and number space, digital radio and television, data protection, security and integrity of electronic communications networks and services, and inspectional supervision and control in electronic communications.

Act on the Right of Access to Information (OG 25/13, 85/15)

Under the Act on the Right of Access to Information (OG 25/13, 85/15), public authorities in Croatia are obligated to publish data in a machine-readable and open format. This means that a machine i.e. a computer can read and interpret it via open source and/or closed source software. The Act on the Right of Access to Information is in line with the EU Directive on the re-use of public sector

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information (2003/98/EC PSI Directive). The purpose of the Directive is the economic aspect of the re-use of information rather than the exercise of the citizen's right to information.

Services Act (OG 80/11)

In Article 6, the Act on Services in the Internal Market transposes into the national legislation the obligation to develop e-procedures in order to establish a business i.e. to set up a permanent establishment (company, trade and other legal forms) and to obtain sectorial permissions for the performance of certain service activities (by certain public administration bodies, if thus stipulated) and prescribes the establishment of an electronic Single Point of Contact which will assist interested persons in conducting the necessary procedures and meeting necessary conditions for access to or performance of a service activity.

Act on National Spatial Data Infrastructure (OG 56/13)

The Act translates the INSPIRE Directive[58] (Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE))) into the Croatian legislation i.e. establishes the National Spatial Data Infrastructure, which is a set of technologies, measures, norms, implementing rules, services, human capacities and other factors which enable effective unification, management and maintenance of spatial data sharing for the purpose of satisfying needs on both national and European level, which will form an integral part of the European spatial data infrastructure defined by the INSPIRE Directive.

Other legal regulations governing this area are the following:

Electronic Signature Act (OG 10/02, 80/08, 30/14), Electronic Documents Act (OG 150/05), General Administrative Procedure Act (OG 47/09), Personal Data Protection Act (OG 103/03, 139/04, 118/06, 41/08, 130/11, 106/12) and Electronic Trade Act (OG 173/03, 67/08, 36/09, 130/11, 30/14).

Decision Launching the eCitizens Project

The Croatian Government adopted the Decision Launching the eCitizens Project (OG 52/13, 31/14, 44/16), which enabled access to public information and information on public services in one place, a secure access to personal data and electronic communication between citizens and the public sector.

Government Conclusion on the acceptance of the Project Plan for the implementation of long-term reform measures for fiscal consolidation for the period 2014-2016 – establishment of a Shared Services Centre

The analysis of the state of national IT has identified shortcomings in the sense of inadequate and insufficiently efficient cost and investment management in the IT sector. IT projects are implemented in ministries without any systematic coordination and possible use of common resources, many systems work with a small percentage of utilisation of IT infrastructure, central state administration bodies have a large number of their own applications the data of which are unavailable to other state administration bodies (data unavailability), many data of the same type are being recorded using different applications, there are no unified common business processes of the state and no system integrating existing applications and databases.

In order to solve the perceived problems in the state IT system management, the Croatian Government has proposed that a single Shared Services Centre be established, thus setting up a single strategic location for the management and coordination of the development of state IT; rationalising state IT expenses through supervision over the spending of budget resources;

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[58] http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32007L0002

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consolidating the integration of the IT systems of different state bodies, and enabling the use of a unified IT infrastructure. Consequently, public sector bodies could focus more on their basic activity and align their work with other public sector bodies by standardising common business processes through the unified IT system. Such a manner of work would lead to a new dimension in the transparency of the system and to creating new business possibilities for the private sector.

At the session held on 24 April 2014, the Croatian Government adopted a Conclusion in which it set out the proposal for a National Programme of Reforms in which the establishment of a Shared Services Centre would be defined as a long-term reform measure. The Conclusion is based on the recommendation of the Commission for the Coordination of Public Sector Informatisation, headed by a Deputy Prime Minister, established by a Decision of the Croatian Government of 2 February 2012. By a new Decision establishing the National Information Infrastructure Council (OG 41/16) from 2016, the Commission for the Coordination of Public Sector Informatisation was abolished.

The decision to launch the Project e-Business

The Croatian Government launched the project e-Business by the Decision on launching the e-Business Project (OG 70/16) and the Decision on amendments to the Decision on launching the e-Business Project (OG 27/17). It will provide access to public information and information about public services for businesses in one place, safe access to the data of businesses and electronic communication between businesses and the public sector.

4. Snapshot

The Republic of Croatia has intensively been working on the introduction of eGovernment. Although many areas are very well covered by e-services, there is still room for enhancing the system. In addition, key preconditions for the development of e-services have been established: eIdentity, safety box for communication with the public administration, single point of access and identification/authentication, and the system of public and base registers. The use of the above is prescribed by the National Information Infrastructure Act.

4.1 e-Services
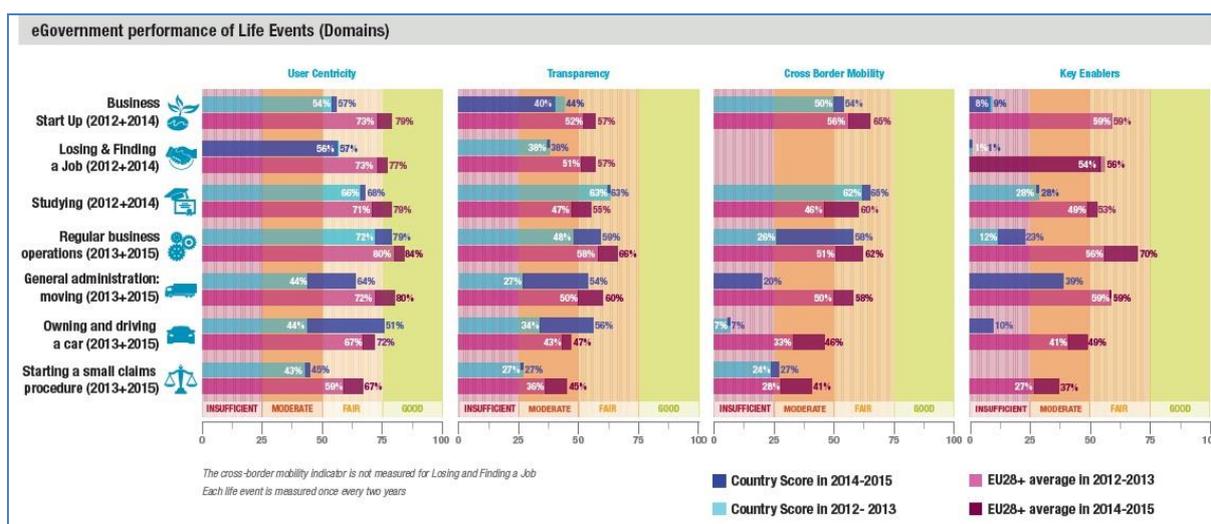
Figure 3 Comparative overview of the state of e-services in Croatia for the period 2012-2015

For the purpose of easier comparative monitoring of the development of eGovernment, and following European Commission guidelines, in the development of e-services we distinguish between e-services for citizens and e-services for businesses, and they are grouped according to the issues they resolve rather than the institutions which provide them. Also in accordance with EC guidelines, maturity levels have been established for the purpose of measuring the accessibility of public services on the Internet.

Every e-service is defined by different informatisation levels, measured on a scale from 1 to 5, with the following meaning:

1. **Information**: only information about a service is available online (e.g. description of a procedure).

2. **One-way interaction**: availability of forms in electronic form for download to a computer, empty forms can be printed out.

3. **Two-way communication:** filling out interactive forms and application which includes authentication, a service is launched by filling out a form.

4. **Transaction: the entire service is available online – filling out forms, authentication, payment and delivery of certificates, placement of orders or other forms of full online service.**

5. **Targeted service (proactivity/automatisation)**: service provision is proactive/automatised in such a manner that merely a confirmation or agreement is requested from the user.

4. Snapshot

The current situation in Croatia is such that a vast majority of e-services is still at the maturity level 2, i.e. the level of one-way interaction. The reason for this is that until the summer 2014 there was no single point in the virtual world for interaction with citizens and businesses, so that every authority which wanted to provide personalised services needed to develop its own system of issuing mechanisms for the verification of eIdentity.

4.1.1 Key preconditions for the development of eGovernment

eCitizens

Almost all public sector bodies have developed e-services.
Problems encountered in that process included:
- a lack of a unique mechanism for the verification of eIdentity;
- a lack of a unique mechanism i.e. central service for issuing credentials i.e. confirmations of eIdentity;
- a lack of a mechanism for secure delivery of personalised information to users;
- dispersion of information and e-services over various websites, and
- a lack of awareness of the public about available e-services.

All of the above has been resolved by launching the eCitizens platform on 10 June 2014 and its further development.

The eCitizens project consists of three main components which make up a joint public sector infrastructure:
- Central Government Portal system,
- National Identification and Authentication System,
- Personal User Box system.

Each component resolves a part of the problems above. The Central Government Portal resolves the problem of dispersion of information and e-services, the National Identification and Authentication System (NIAS) resolves the problem of electronic identity verification, and a network was developed for issuing one type of access elements, while the Personal User Box (PUB) represents a mechanism for secure delivery of personalised information to users.

By issuing the electronic identity card (eID) with an identity certificate, which is also a credential of the highest level, the Ministry of the Interior has enabled access to all electronic services.

Central Government Portal

One of the problems stated above, namely the dispersion of information and e-services, was resolved by introducing the system of a central government portal which integrates information and e-services in one place – the Central Government Portal which is realised within a single domain: **gov.hr.** The goal of this portal is to provide information about all public administration services related to life situations, and to integrate all the websites of central public administration bodies in a standardised manner.

Those pages also include a list of all e-services provided by public administration bodies, including local and regional self-government bodies, under "Other e-services in the Republic of Croatia"[59].

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[59] https://pretinac.gov.hr/KorisnickiPretinac/eGradani.html

4. Snapshot

National Identification and Authentication System NIAS

NIAS is the single point of eIdentity verification for access to e-services (national identification and authentication system – NIAS).

NIAS is a comprehensive IT solution for identifying and authenticating users on national level, which enables the inclusion of several types of credentials with different levels of security, from level 2 (the lowest) to level 4. Available credentials are listed in the Accepted Credentials Table[60]. The goal is to include the credentials of all interested businesses in NIAS i.e. the National Identification and Authentication System, and to open up the system for the private sector.

The basic function of NIAS is secure eIdentification and authentication of e-service users.

NIAS has the role of an intermediary between the e-service user, the e-service provider and the issuer of a credential. The set of data forwarded by NIAS to an e-service is sufficient for unambiguous user identification, and in Croatia this is the personal identification number (PIN, *Croatian: OIB*) All natural and legal persons which need to be monitored in the official records of the Republic of Croatia are given a PIN. PIN represents eIdentity of all said persons, and all applications are developed using PIN as the unique identifier.

In March 2017, the following electronic credentials are available in the NIAS system:
- ePass user name and password – a system developed for eCitizens;
- mToken – application developed for smartphones - a system developed for eCitizens;
- smart card of the Croatian Health Insurance Institute (CHII);
- user name and password from the AAI@EDU system – existing authentication and authorisation system of science and higher education;
- HPB Token/mToken;
- ePost (user name and password) – Croatian Post;
- electronic identity card;
- FinaSoft certificate;
- Zagrebačka bank Token/m-Token;
- Privredna bank Zagreb mToken and card reader;
- Raiffeisen bank mToken/card reader/token;
- Kentbank SMS disposable pin;
- FinaRDC certificate and
- OTP bank Token/m-Token.

The credentials ePass and mToken are issued only to persons who request them in person. A person can request credentials for oneself or for another person whose authorisation he/she has received. However, it is not possible to issue credentials for children under 15 years of age, nor is it possible for parents to request credentials on their behalf. Credentials cannot be issued abroad, but someone in Croatia must be authorised instead.

A person living abroad may also be authorised, but that person must come to FINA in Croatia and identify himself/herself in person when submitting the application for the issuance of an ePASS and/or mToken based on the authorisation document.

Personal User Box

Users receive messages from the public administration in the Personal User Box (PUB). They can receive over 60 different notifications[61] from the public administration, and the number is constantly

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[60] https://gov.hr/e-gradjani/lista-prihvacenih-vjerodajnica/1667
[61] Situation in February 2017.

growing. The PUB ensures proactive functioning of the administration, as it sends notifications to the user without him having to launch an e-service.

Examples of the messages are: the state of payments for the supplementary medical insurance; notification of civil register data verification; notifications of the beginning and end of account blockage; notifications from REGOS, the Croatian Pension Insurance Institute and the Croatian Employment Service; notice of hearing from the eSPIS system; changes in one's case, passport expiration, decision on unemployment benefit, etc.

The personal user box is available via iOS, WP and Android mobile platforms. The PUB enables the user to personalise messages and forward information on the messages to their e-mail address.

In the next period it is planned to upgrade the Personal User Box so as to enable the delivery of official notifications requesting the confirmation of receipt.

eCitizens Contact Centre

Within the eCitizens system, the Republic of Croatia has also provided for an eCitizens Contact Centre as a central point of contact and support for all current and potential users of the eCitizens system. Users can get support via telephone number 072200027 and two e-mail contacts. The purpose of the establishment of the eCitizens Contact Centre is to ensure adequate and fast user support regarding electronic service use, and regarding the provision of information on the functioning and possibilities of the system.

Bearing in mind the further plan of eGovernment development and a positive trend of Internet use in Croatia, work on the enhancement of online structure and fast accessibility of information will proceed simultaneously.

Conclusion eCitizens

The eCitizens platform represents the basis for the development of e-services for citizens in the Republic of Croatia. The involvement of this platform in the development of new services is prescribed by law.

4.1.2 Other sectorial platforms (eTax, eHealth, eSchools, ePermit…)

There are other platforms nowadays as well, related to specific administrative areas, of which only a few are indicated below. The Tax Directorate has its own platform eTax, which enables the use of the Electronic-services of the Tax Directorate[62], and the Customs Directorate has the platform eCustoms[63] for the use of e-services. An important portal for employees in the health care system is CEZIH[64] – Central Healthcare Information System of the Republic of Croatia, and in the science and education system there are portals CARNet[65] and Srce[66]. Ministry of Science and Education carried out electronic enrolment in the first year of secondary schools through the National information system for enrolments in the educational programmes of all secondary schools[67] and application and enrolment in higher education through National information system for application in higher education institutions[68]. The area of spatial data is regulated through the National Spatial Data Infrastructure[69], and a portal has been established for the purpose of locating spatial data and public

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[62] https://e-porezna.porezna-uprava.hr/

[63] https://e-carina.carina.hr/

[64] http://www.cezih.hr/

[65] www.carnet.hr

[66] www.srce.hr

[67] www.upisi.hr

[68] www.postani-student.hr

[69] http://geoportal.nipp.hr

sector services through a metadata system, as well as the Joint Information System of Land Registry and Cadastre (JIS) as the central place with cadastre and land registry data, with its subsystem One-Stop Shop (OSS).

4.1.3 Open data

According to the Law on Freedom of Information, which undertakes the EU Directive on the reuse of public sector information, and is related to strengthening the obligation of publishing information of public character contained in the form of bases or registers for reuse by the private sector or civil society and citizens and to create additional social and economic values of commercial or non-commercial character, the obligations aiming at enabling reuse and open data are set out for public authorities. Directive and the law requires of all authorities to ensure the publication of such information on the website or through the portal, and facilitate the provision by individual applications, as well as to apply rule without costs, whereas the collection of the costs can be carried out only when necessary and in accordance with the rules prescribed by the Act and subordinate legislation. Also, the independent control of the reuse and revision of the exclusive rights to the use of public sector information is required. Special novelty refers to the obligation to open the data in the field of culture - museums, archives and libraries, and the inclusion of such information in the digitized European portals.

Open data are data generated by public authorities, with the use of which for commercial and/or non-commercial purposes added value or economic benefit can be created.

Examples of the sets of open data are geolocation data, transport data, meteorological data, environmental data, etc. Open data typically contain no personal data, or, in other words, data which are protected by the Personal Data Protection Act are not considered open data since their publication is not permitted.

The **Open Data Portal of the Republic of Croatia**, modelled on other similar projects in Europe and the world, **represents a catalogue of metadata** (data which describe sets of data more closely), and it helps users to get to desired open data easily. The portal was established at the address https://data.gov.hr.

The Republic of Croatia participates actively in the implementation of several European projects with the aim to exchange best practices and experiences in the establishment of the system, in particular:

- Public Sector Information Group and Subgroup,[70]
- Open data Support,[71]
- ePSI Platform,[72]
- Share PSI,[73]
- LAPSI (Legal Aspects of Public Sector Information),[74]
- OpenAIREplus (2nd Generation Open Access Infrastructure for Research in Europe).[75]

4.1.4   e-Inclusion

For the moment, the Croatian legislation does not define the need to ensure accessibility of websites in the public sector. The Website Development Guidelines for the Central Government Portal require that greater accessibility is ensured in line with the Web Content Accessibility Guidelines WCAG 2.0

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[70] https://ec.europa.eu/digital-agenda/en/news/public-sector-information-group-main-page
[71] https://joinup.ec.europa.eu/community/ods/description
[72] http://www.epsiplatform.eu
[73] http://www.w3.org/2013/share-psi/
[74] http://www.lapsi-project.eu
[75] https://www.openaire.eu/

and Directive (EU) 2016/2102 of the European Parliament and of the Council on the accessibility of the websites and mobile applications of public sector bodies.

It is necessary to further ensure the inclusion of vulnerable groups in the use of e-services, both by informing them about the possibilities of receiving the services and public information through ICT in general, and through the development of skills and knowledge, particularly targeted educational programs. All groups should be encouraged and motivated to use information and communication technologies. The absence of the above, certain groups (e.g. the elderly, people with no education or with lower education, certain minority groups, the unemployed, etc.) are exposed to greater risk of lagging behind the rest of the citizens, thus increasing the already present digital divide. At the same time, developing and implementing a program of computer literacy will facilitate the acquisition of skills and knowledge for retraining, and thus reducing unemployment.

4.1.5 Key e-services by area

e-Services provided by public authorities in the Republic of Croatia can be divided according to several criteria, e.g. depending on whether they use NIAS i.e. the National Identification and Authentication System, or depending on intended users.

Division according to the criterion of inclusion in the eCitizens system:
- services using NIAS as a part of the eCitizens system (a list of the e-services is provided on https://pretinac.gov.hr/KorisnickiPretinac/eGradani.html - Available e-services in eCitizens system), and
- services not using NIAS (for the moment); a list of the e-services is provided on https://pretinac.gov.hr/KorisnickiPretinac/eGradani.html - Other e-services in Croatia).

On the other hand, the user criterion can be applied, distinguishing between services intended for citizens and those used by legal persons. By applying this criterion, insight will be given into e-services which may be used by the users of electronic public services in the Republic of Croatia.

Available e-services for citizens

The rule of law and security is a topic for which public authorities have developed most services:
- Through the use of NIAS:
  - Citizens can check and manage messages sent by state administration bodies to their safe e-box,
  - During presidential, parliamentary or local elections, and during state referenda citizens can check their entry in the electoral register and submit an e-request to vote at a different polling station, and
  - They may request e-records related to domicile, residence and vehicle ownership.

- Without the use of NIAS:
  - Local self-government offers various services, and some cities and municipalities (e.g. Rijeka, Split, Osijek, Pula, Zadar, and smaller municipalities like Medulin, Vela Luka, Ližnjan, Kamanje, Ozalj) have developed a service for citizens to monitor the status and processing of cases,
  - If they are participating in judicial proceedings, citizens can go online and check basic data on the court cases in which they are participating, make an informative calculation of court fees or check the notice boards of courts, and
  - In case they wish to protect specific industrial property, they can initiate the process from their PC.

In the area of **family and education**, the following e-services have been developed:

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- Through the use of NIAS:
  - Obtaining documents from the registers of birth, marriages and citizenship,
  - eClass Register allows parents whose children attend schools that are involved in the eClass Register to see all relevant data regarding their children in primary or secondary school and
  - Also, parents have the possibility to calculate a potential child benefit.

- Without the use of NIAS (other identification/authentication mechanisms are used):
  - The website https://www.upisi.hr/upisi/ is the user interface of the National Information System for Enrolments in the educational programmes of all secondary schools in the Republic of Croatia. The system allows better connections of all participants in the enrolments' process - the Ministry, state administration offices, county administrative departments, primary and secondary schools, pupils and parents,
  - The website https://www.postani-student.hr/Ucilista/Default.aspx is the user interface for the Central Register of the State Matura and the National Information System for Application to Higher Education Institutions. The system covers the application for the State Matura, the application for study programmes and overview of the results by all elements of evaluation for ranking in the study programmes.

In the area of **health**, users are extremely interested in the development of new e-services:
- Through the use of NIAS one can:
  - View information on the chosen doctor,Submit a request for the issuance of the European Health Insurance Card, or
  - Check prescriptions collected in pharmacies in previous 6 months.

- Without the use of NIAS one can:
  - Check waiting lists in health institutions, check the status of their compulsory and supplementary medical insurance,
  - Find the closest health service or pharmacy, and
  - Set up a supplementary insurance policy.

In the area of **labour**, the following e-services have been developed which citizens can use through NIAS:

- Request an informative calculation of pension,
- Request an e-record of the legal employment status and verification of authenticity of the issued e-record,
- send a notification of the intention to claim full or early retirement pension
- View information on earned income, and on registrations and terminations within the pension insurance system,
- Obtain information on the state of requests for the exercise of rights from pension insurance,
- View information on amounts debited from the pension income via their personal user box,
- Upload their CVs to the database of the body connecting unemployed persons and employers, and
- Check all information related to the mandatory pension fund.

Finance and taxes is a topic for which several extremely important services for citizens were developed:
- Through the use of NIAS:
  - View information from tax and accounting records, and
  - View total income, deducted contributions and taxes per individual payer.

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- In addition, through the Personal User Box users have access to information about annual tax statements and notifications about obligations for motor vehicles.

- Without the use of NIAS:
  - Natural persons who own shares can see the status of their account.

In the area of **housing**, i.e. of real estate ownership, physical planning and **environmental protection**:
- Through the use of NIAS:
  - The service of access to information from the land registry and cadastre system, and an enhanced level of quality and speed of service provision in tasks involving registration of changes in real property rights,
  - The service of electronic registration of residence.

- Without the use of NIAS:
  - ePermit, a system which enables the initiation and conduct of the entire procedure of issuing documents required for construction,
  - The Geoportal of the Physical Planning Information System, which was set up as the central point of access to physical plans, information about physical plans, ePermit, etc., where physical planning data can be matched against other available spatial data,
  - Access to numerous geospatial data and visually presented cadastral map, with an option to search data by entering a land parcel number or cadastral certificate number, and view the case status. Real estate owners can also access basic data on the real estate they possess with a few clicks of the mouse,
  - Numerous interconnected e-databases can be found online containing information on the state and pollution of individual environmental components, interactive maps containing data on air quality and sea bathing water quality on beaches,
  - the Geoportal of the State Geodetic Directorate was established as the central location for access to spatial data of the State Geodetic Directorate, and
  - Via the NSDI Geoportal, spatial data are available for search, viewing and download through standardised online services. In March 2017, the NSDI Geoportal contains 200 metadata entries which fall under the scope of 39 institutions.

Services related to **active citizenship and leisure time**:
- Through the use of NIAS:
  - Citizens can participate in one place in the processes of consultations with the interested public during the development of specific legal regulations.

- Without the use of NIAS:
  - The service of purchase of daily, multy-day and annual permits for recreational fishing;
  - Travellers abroad can check information on security status in destination countries and their visa regimes.

The area of **consumer rights** is **gaining in importance**.
- A central information system for consumer protection has been developed in Croatia, and special progress has been made in the field of telecommunications, so that citizens can submit online complaints related to consumer rights.
- Interactive maps are available which show data relating to broadband Internet access.

Available electronic services for business users

e-Services for business users are important for the purpose of enhancing the efficiency and productivity of services and accessing information and markets. Croatia has an extremely high

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percentage of business users who use e-services, which amounted to 92.7% in 2014 (fiscalisation and e-submission of the so-called JOPPD form – Report on receipts, income tax and compulsory insurance contributions – contributed a lot to the increase in the percentage, as did e-registration in the pension insurance system).

Numerous services have been developed which simplify the process of registering a company electronically. A new founder of an LLC or a simple LLC needs to visit a single physical location to register the company, and the whole process is complete within 24 hours. Although one must appear in person to register a company, there are many A2A services which accelerate the process. Furthermore, the Invest in Croatia website offers all the necessary information on investment projects, entrepreneurial zones and other data required for making a decision on investment.

The registration of the beginning of **operation** and all changes during operation are made online.

In the area of **finance and taxes**, obligatory e-services are as follows:

- Fiscalisation – a service of the Tax Directorate which collects information on every invoice the moment it is issued.
- Services, submission of forms via the eTax portal, sorted out according to the following groups of services/forms:
    - Value-added tax,
    - Income tax and contributions (JOPPD form),
    - Profit tax,
    - Consumption tax, and
    - Lottery and prize draw competitions.

- Electronic submission of all the available forms is obligatory for tax payers classified as medium-sized and large enterprises within the meaning of the Accounting Act; since 1 January 2013, all tax payers registered for VAT,

- Submission of the JOPPD form – since 1 January 2014, obligatory e-submission (for over 3 employees) of the form on receipts, income tax and compulsory insurance contributions. The Report on receipts, income tax and compulsory insurance contributions as of is submitted in electronic form through the eTax portal for the purposes of the Tax Directorate and REGOS.

In the area of taxes and excise duties, obligatory e-services are as follows:

- eCustoms – the process of document exchange with businesses within eTax was initiated in 2012 through the obligatory use of the e-service in the area of transit, and in 2014 that type of operations was extended to the area of import and export, calculation of duty and collection, supervision of the movement of excise goods under suspension of excise duty, and everything is integrated in the overall information system of the Tax Directorate,

- eExcise – since 1 September 2014, all excise duty payers and payers of special taxes are obligated to submit all forms electronically, which is integrated in the overall information system of the Tax Directorate.

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In the area of **labour** i.e. **employment**, all actions related to registration, change and termination of pension insurance must be performed entirely electronically for employers with more than 3 employees.

Businesses which have **import** as one of their basic activities have various services of the Customs Directorate at their disposal. On the other hand, **exporters** can find different information on foreign markets which will be crucial for deciding on product placement in a target country.

At the same time, **investors** in Croatia can, apart from calculating incentives for new investments, report an administrative barrier which prevents timely execution of an investment project.

Information on legal persons and trades are available to all interested parties in the form of the Court Register of Companies and the Crafts and Trades Register.

e-Services accessible through eCitizens platform

The system of public e-services accessible through the eCitizens platform is a distributed and decentralised system in which every ministry or other public institution develops implements and maintains e-services from its respective scope.

The launch of the eCitizens system has enabled access to e-services which use the National Identification and Authentication System NIAS for the establishment and verification of identity:
1. Electoral Register,
2. My OIB (PIN),
3. myID,
4. Personal User Box,
5. eCivil Registers,
6. eClass Register,
7. ePKK – Tax and Accounting Record,
8. Overview of the chosen doctor,
9. Request for the European Health Insurance Card (EHIC),
10. CPII user pages,
11. Electronic record of legal employment status,
12. Employment exchange,
13. REGOS system of electronic services,
14. My account – REGOS,
15. Electoral Register – eTemporary Registration,
16. MoI e-Services – electronic record of domicile, residence, vehicle ownership,
17. Child benefit calculator,
18. eJOPPD – enables inspection of total income, deducted contributions and taxes,
19. Collected prescriptions – overview of the prescriptions collected in previous six months (the first service which was established on a higher security level – level 3, so it cannot be accessed with a username and password,
20. eConsultations – a central state web portal which enables the participation of users in the process of consultation with the interested public, which is administered by the Government Office for Cooperation with NGOs in accordance with the Act on the Right of Access to Information,
21. Joint Information System of Land Registry and Cadastre JIS OSS,
22. eTrade,
23. eMaritime,
24. eRegistration of residence of Croatian citizens,

25. eConsultations – MINPO,
26. Open orders (login credential minimum level 3)
27. e-Record of the student status,
28. ZG Holding - Utilities and fees,
29. Registration of facilities which provide accommodation services to foreigners,
30. A central application to graduate programs,
31. Approvals and authorizations in procedures from the scope of the MIA (Ministry of Internal Affairs),
32. eVisitor (login credential minimum level 3),
33. eVessel,
34. eStatements of Contributions to the pension system,
35. Tax statement for calculation and payment of a special tax on motor vehicles,
36. Health Portal (minimum level 3 credential required for login)

4.2 Public administration informatisation (A2A)

All public administration bodies are developing their information systems individually, without any coordination and infrastructure management. Due to insufficient human resources, state bodies and institutions easily accept the recommendations of suppliers, so that suppliers themselves exert great influence on the development, doing their best according to their knowledge and understanding of the public administration system. In addition, informatisation is affected by the financial situation, so it is conducted completely unevenly. In some parts new systems and new technologies are being introduced, while other institutions are struggling to maintain their existing systems. State administration offices in counties are a typical example of institutions in which it is practically impossible to fund informatisation.

In this part, services are provided by interconnecting information systems and including data from other sources in applicative solutions, in accordance with the National Information Infrastructure Act.

The system is developed according to the scheme of interconnection of loosely coupled service components as the necessary infrastructure for the introduction of European public services in line with the EIF 2.0.

4. Snapshot
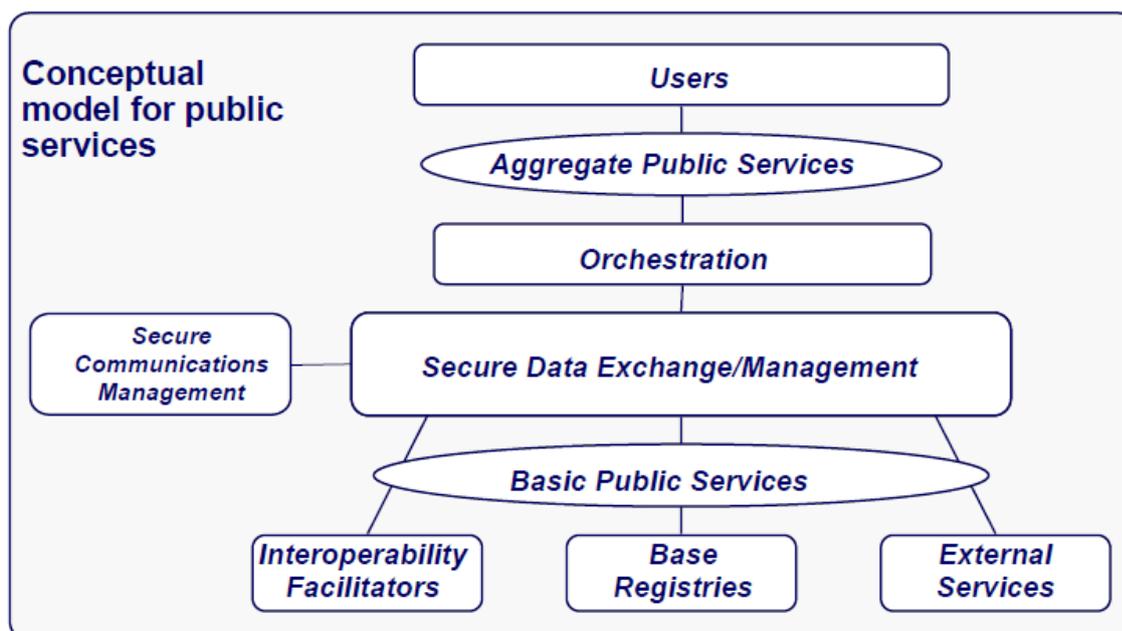
Figure 4 EIF 2.0 Joint scheme of interconnection of loosely coupled service components, necessary infrastructure for the introduction of European public services

4.2.1 Interoperability system

The interoperability system in the Republic of Croatia is still in development and it should ensure interconnection of information systems developed on the principle of silos into a single system which will ensure the surpassing of legal, organisational, technical and semantic barriers in the development of national information infrastructure.

The **ProNII Public Register** serves to build interoperable solutions and to rationalise expenses in the development of public sector information systems in such a way that it guarantees control over projects, and on that basis decisions are made on joint project implementation, while preventing the planning and implementation of overlapping projects.

The **public register Metaregister** is also in place, functioning as a collaboration tool for the development of the system of interconnection of public registers. Apart from the entry of all the existing ways and possibilities of interconnection, the Metaregister ensures coordination during changes in the system of registers, and creates the so-called *'referential integrity'*.

The National Spatial Data Infrastructure (NSDI), the aim of which is to make spatial data more easily accessible, includes since 2013 an NSDI metadata catalogue comprising records on the spatial data of the public sector, which is based on the European metadata profile in accordance with the European Spatial Data Infrastructure (INSPIRE Directive). Spatial data can be accessed via standardised online services for spatial data.

Government Service Bus and OIB system

For the purposes of OIB, a system has been developed in Croatia which partly has the characteristics of a common base for secure data interchange (GSB -Government Service Bus). The OIB system has been in use since 2009, and can represent a good starting point for the establishment of a unique interoperability support system. It enabled the creation of the unique personal identifier which is

legally accepted, which created the preconditions for electronic data interchange in all official records between public authorities.

4.2.2 HITRONet

HITRONet, i.e. a computer communication network of state administration bodies, is a communication system which represents the online backbone of administration. By connecting public authorities on national level, the first core of a comprehensive communication system for the needs of eGovernment was created, which is also one of the infrastructural preconditions of its further development. The backbone of HITRONet was established on the optical infrastructure through the so-called dark fibre lease, and the access network is designed as a virtual private network across the Internet communication environment with allocated ports for nearly all state administration bodies.

Since 2009, HITROnet is connected to the sTESTA network (sTESTA - secured Trans European Services for Telematics between Administrations), a special network of the European Union, the purpose of which is to connect bodies on EU level. sTesta represents a safe and reliable network used for provision of trans-European services between the public administrations of Member States.

4.2.3 Government cloud

A project of the Shared Services Centre which develops government cloud is carried out through the Operational Programme Competitiveness and Cohesion (see more in section 7.4.2).

4.2.4 Information Security Management System (ISMS)

Given that the existing state administration information system is heterogeneous and distributed over state authorities responsible for the provision of specific services to citizens, the existing information security management system is also distributed and therefore limited in management efficiency. Although defined, the information security management framework is difficult to implement in the described uncentralised circumstances. One of the central points in which advanced technical protection modules from the cyber security domain have been implemented is the HITRONet network. Since the network is not being used by all state authorities yet, security mechanisms have not been applied to all bodies.

From the perspective of reactive action, CERT (Computer Emergency Response Team) competencies have been established, which are responsible for handling computer security incidents in state authorities.

4.3 Common solutions for the same type of functions of public authorities (A2A)

Public Sector Staff Register and Central Payroll

With a view to reforming state administration, human resource management has been identified as an important area of reform. Accordingly, the Public Sector Staff Register (RegStaff) was established, which unifies data on civil servants, state employees and employees in public services in one place. The purpose of the establishment of the Public Sector Staff Register is to monitor and amend data, and thus to create preconditions for effective and efficient human resource management in state administration and public services, and also to ensure elements for the centralised payroll for the public sector i.e. for employees whose salaries are allocated from the state budget.

Currently, for almost 250,000 employees, salaries from the state budget are paid out through the central payroll system COP.

4.4 Organisational framework of public administration informatisation

The resources allocated in the state budget for investments in ICT are nowadays exceptionally abundant. A big problem lies in the fact that there is no information on the actual expenses and investments. The reason for this, inter alia, is that ICT projects are implemented in individual institutions without any systematic coordination and possible use of common resources. For the purpose of performing tasks from their scope, state administration bodies each keep a number of registers, but do not automatically exchange data from them with other bodies where there is a need for it. The result is the collection and existence of the same type of data in different registers, and differences in what should be equal data i.e. the competence for updating specific data represents a big problem. A lack of unique common business processes of the state on horizontal and vertical level makes operation difficult and prevents transparency, which makes it difficult and/or impossible for the users of state administration services to exercise the rights guaranteed to them.

4.4.1 Organisation and management

The organisation and management of the informatisation of national information infrastructure is structured as follows:

National Information Infrastructure Council

- The Council and its tasks have been described in section 3.2.2.

Central state administration body competent for e-Croatia

- A body competent for the tasks of managing and developing national information infrastructure, preparing ICT policy and strategy of the public administration.

Central State Office for Digital Society Development

- The Central State Office for Digital Society Development performs administrative and professional tasks related to the development, standardisation, security and recommendations for the use of national information infrastructure; participates in the promotion and systematic improvement of the development of networked infrastructure in Croatia, public access to Internet services and contents; coordinates the development and application of information and communication technologies in the systems of eEducation, eHealth, eBusiness and other related areas; develops standard information equipment in the public sector; participates in the adoption and monitoring of the implementation of laws and other regulations in the area of ICT application in Croatia; defines activities and methodology for monitoring progress and impact assessment of digital society development policies; proposes to the Croatian Government the adoption of a Strategy of IT Literacy Popularisation in the Republic of Croatia; provides professional and administrative support to the National Information Infrastructure Council, participates in preparing documentation for the use of pre-accession programmes, structural funds and other relevant EU programmes.

Public sector bodies

- Bodies competent for the informatisation of areas from their respective scopes.

4. Snapshot

DECISION MAKING RELATED TO
NATIONAL INFORMATION INFRASTRUCTURE

Line bodies enter ICT projects into ProNII

Central **e-Croatia** authority is competent for ProNII

National Information Technology Council monitoring the implementation and making recommendations for investments in IT which cost more than 2.5 million kuna, propose measures and activities for improvement of investments and report to the Government of the Republic of Croatia

Croatian Government

Figure 5 Schematic view of organization and management

4.4.2 Backbones of eGovernment Development

Today's backbone of eGovernment development consists of the Information Systems and Information Technologies Support Agency (APIS IT)[76], the Financial Agency (FINA)[77], Commercial Services Agency (AKD) the Croatian Academic and Research Network (CARNet)[78], University of Zagreb Computing Centre (Srce)[79] and Information Systems Security Bureau (ISSB)[80].

4.4.3 Human resources

Results of the research conducted in cooperation with central state administration bodies give a clear indication that all state administration sectors are facing equal or very similar problems when it comes to human resources for ICT. Among the biggest problems are the lack of human resources and/or the lack of knowledge of the professional staff. A systematic lack of investment in continuous education of civil servants, for both new and existing technologies, with significantly lower income in relation to the real sector, makes it impossible to recruit and to retain young experts, and makes the state administration uncompetitive. Bad systematization of working posts with corresponding competencies, i.e. vacant posts in all categories, are among the reasons which prevent quality management of ICT projects and their implementation. A part of the problem was also identified in a lower level of IT literacy and advanced age of the professional staff. The result of all this is the lack of an adequate level of ICT growth in the state administration.

There is large misunderstanding among public administration employees about the role of digital inclusion (accessibility), eGovernment and sharing of public content in the enhancement of the quality of social capital and competitiveness of the Croatian economy.

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[76] http://www.apis-it.hr
[77] http://www.fina.hr
[78] http://www.carnet.hr
[79] http://www.srce.unizg.hr
[80] https://www.zsis.hr/

4.5   Needs of eGovernment Development

The data analysis of the National Bureau of Statistics says that 47% of the citizens who access the Internet use it to access public administration e-services[81], as opposed to 37% in 2013[82]. On the other hand, the overview of the reasons for not having Internet access in households – 32% of those surveyed in 2014 – is worrying, as most of those citizens, more precisely 59%, believe that there is no need for them to access the Internet[83]. This means that the state should prepare quality e-services which could motivate them to use the Internet. Another interesting piece of information is that for the highest percentage of businesses the Internet serves to collect and submit forms[84].

When designing services, it is important to bear in mind that what is needed most are complex services which cover entire administrative procedures, and the processing of which most often requires cooperation i.e. information flow across several institutions, rather than services confined to a single institution.

In order to be able to plan informatisation and e-service provision for citizens and business as well as possible, a questionnaire on satisfaction with public administration e-services and priorities for the preparation of new e-services was placed on the website of the Ministry of Public Administration (Annex 2 of this document shows all questions). All users were asked through the eCitizens system to fill out the questionnaire.

The **"Questionnaire on Satisfaction with Electronic Services and Information"** was published on the Internet on 17 December 2014, and remained active until 1 March 2015.
Over 5,000 people filled out the questionnaire in that period, out of which **3,268** people completed the entire questionnaire. Only the questionnaires completed in full were processed. A message was delivered to all users of the personal user box PUB asking them to fill out the questionnaire.

Annex 3 of this document shows answers to the questionnaire after detailed processing.

The biggest number of citizens considers services from the health sector important. First in the rank of importance are services for making appointments for health services and access to personal data on health care services. They are followed by online voting, access to judicial registers and services, eConstruction Permits, eEducation, consumer advice and job announcements.

The biggest number of citizens expressed the need for the development of e-services and the provision of information in the field of finance and taxes. This is followed by the field of health, rule of law and security, education, labour, consumer rights, transport and vehicles, business, family and lifestyle, active citizenship and leisure time, along with housing and environment, war veterans and other, with tourism and culture at the bottom of the list.

Fields concerning online information search match with the fields in which citizens wish to have services. Services in the field of finance and taxes come first, followed by health, labour and the rule of law and security.

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[81] Information and Communications Technology (ICT) Use in Households and by Individuals in 2013, First Results, Central Bureau of Statistics, Zagreb, December 2013 http://www.dzs.hr/Hrv_Eng/publication/2013/02-03-02_01_2013.htm
[82] Information and Communications Technology (ICT) Use in Households and by Individuals in 2013, First Results, Central Bureau of Statistics, Zagreb, December 2014 http://www.dzs.hr/Hrv_Eng/publication/2014/02-03-02_01_2014.htm
[83] Information and Communications Technology (ICT) Use in Enterprises in 2013
[84] Information and Communications Technology (ICT) Use in Enterprises in 2013, First Results, Central Bureau of Statistics, Zagreb, December 2013 http://www.dzs.hr/Hrv_Eng/publication/2013/02-03-01_01_2013.htm

4. Snapshot

The majority of persons who filled out the questionnaire were aged 25 to 35. However, the division of the services required is in line with the needs of other age groups, too.

A large number of citizens are satisfied with the manner online requests are handled. However, it is also visible that it is impossible to process the entire request online. It is therefore necessary to work more intensely on the interconnection of information systems and on complex (aggregate) e-services.

In addition to the mentioned indicators, all documents received from the European Commission (EC) also indicate the need for a more intensive eGovernment development. The Europe 2020 strategy emphasizes the implementation and use of available modern online services (e.g. eGovernment, eHealth, smart houses, digital skills, security, etc.) A Position Paper proposed by the Commission to the Republic of Croatia identifies ICT and eGovernment application development, including eHealth services, as a reaction to economic and social challenges, as well as the enhancement of innovation, public administration modernisation and access to services for citizens and businesses. The Partnership Agreement between Croatia and the EC also estimates the level of public e-service provision and use to be relatively low. Public e-services in Croatia are more available to companies than to citizens. Simultaneously, ICT implementation is becoming a key element for a better presentation of political goals. The 2015 National Reform Programme outlines the need to implement ICT applications as a policy and service provision tool in all reform areas. The 2016 National Reform Programme puts stress on the development and quality of digitized public services, while the 2017 National Reform Programme emphasizes the increase in public administration efficiency through the digitization of public services.

5. SWOT analysis of public administration ICT

Table 1 SWOT analysis of the current state of public administration

STRENGTHS	WEAKNESSES
- Strong political commitment to building a modern, efficient and transparent public administration system, the aim of which is to ensure access for citizens and businesses to high quality services and coherent and reliable data through ICTA solid legal foundation for the modernisation and informatisation of the public administration considering the needs of external users (National Information Infrastructure Act, Right of Access to Information Act) - Existing strategic framework for the development of e-services and applications in sectorial strategies (and the Public Administration Development Strategy), with an additional advantage of the Digital Growth StrategyDefined competence for e-Croatia affairs - The established eCitizens system offers the national portal system, NIAS and personal user box system - Introduction of the Public Register for the Coordination of National Information Infrastructure Projects - ProNII - Effects and experiences acquired through the already implemented projects under EU pre-accession funds and World Bank - Most central registers of the administration are already developed and functioning - Developed modern technological resources of the public administration (infrastructure and know-how) - Available list of existing public registers and web services, and of their existing solutions for interconnection with other public registers (Metaregister) - The process of data alignment across public registers is underway - Common rules for national information infrastructure development and implementation of projects related to the National Information Infrastructure Act will be defined through secondary legislation - Improved coordination and management of ICT applications and public e-services as a result of the establishment of a Shared Services Centre and its activities regarding the elaboration of business	- Lack of a body responsible for ICT tasks at the level of the Croatian Government, the head of which would answer directly to the Prime Minister - Insufficient efficiency, effectiveness, transparency and responsibility of central government and local and regional self-government in public policy implement-ation and public services provision - A relatively low level of e-services provision and use, and their low adaptability to the needs of individual users in relation to the EU average - Restricted data exchange among public administration bodies - Insufficient attention paid to the specificities of access to electronic information for disabled persons and vulnerable groups, including the veterans and victims of the Homeland war - Insufficiently developed system for the publication of public information and data for re-use - Lack of systematic coordination or a possibility to use common software and hardware resources, which results in silo solutions ("silo effect"), lack of interoperability and integration of ICT systems, as well as inefficient ICT cost and investment management in the public sector - Lack of a coordination mechanism for ICT projects in central government and local and regional self-government - Delays in informatisation (eGovernment) in relation to the EU, we are in the initial phase of a comprehensive integration of information systems - Insufficient awareness among public administration employees about the role of digital inclusion (accessibility), eGovernment and sharing of public content in the enhancement of the quality of social capital and competitiveness of the Croatian economy.

5. SWOT

processes and standards • Increased efficiency and cost-effectiveness of public ICT infrastructure management as a result of the establishment of the Shared Services Centre, which manages the central government and local and regional self-government "cloud" • Growing number and enhanced quality of services provided to citizens by public institutions, a growing level of public e-service use, a growing need for the provision of high quality and accessible e-services • Structured and comprehensive access to public administration informatisation presented in the e-Croatia 2020 Strategy, based on the use of ICT to modernise and increase the efficiency of public administration in e-service provision and access of external users to public data • Partnership dialogue with stakeholders within and outside public administration • Trend of growth in the use of modern information and communication technologies on the level of central government and local and regional self-government • Clear strategic definition of digitization projects in chamber systems • Available consolidated fiber optic infrastructure of predominantly government-owned companies	• Insufficient human resources and education in the area of ICT use and development in the public administration • Lack of a Chief Information Officer for strategic thinking and introduction of ICT and e-services in public administration bodies, who would answer directly to the head of a body • Lack of aligned/regulated business processes/administrative procedures in the public administration • Business processes adjusted for the manual form of realisation • Lack of adopted technical standards for national information infrastructure development • Relatively week penetration of broadband Internet access in the population and its uneven distribution on the territory of Croatia • Sporadic process of enhancement and modernisation of electronic access to the services and data of public institutions is dependent on individuals, instead of the system • Delays in timely execution of key ICT projects which contribute to the results of the Strategy due to lengthy procurement procedures or other formal and procedural aspects • Delays in timely execution of key ICT projects which contribute to the results of the Strategy due to the lack of capacities • Undefined criteria i.e. conditions for accommodation/storage of data from basic and public registers, related to the issue of continuity in operations, especially in an interconnected public administration • Lack of resources in the state budget for ICT projects • Lack of resources in the state budget for co-financing EU-funded projects • Insufficiently fast progress in the implementation of the Digital Agenda objectives in comparison with other EU Member States • Lack of a public presentation of everything accomplished in the ICT field • Insufficient connection of business people and chamber organisations with the national ICT infrastructure

5. SWOT

Table 2 SWOT analysis - opportunities and threats

OPPORTUNITIES	THREATS
- Existence of the European Interoperability Framework - Cooperation with APIS IT, which can co-finance the realisation of a SSC from own resources - Availability of various financial sources for the realisation of ICT projects - Around 130m Euros from European Structural and Investment Funds available in the period 2014-2020 for investments in public e-services development and public administration informatisation - Possibilities for increasing the accessibility of broadband Internet access with funds from the Operational Programme Competitiveness and Cohesion 2014-2020 (OPCC) for areas without lacking sufficient commercial interest through the National Framework Programme for the Development of Broadband Infrastructure and through the National Programme for Backhaul Broadband Infrastructure (NP-BBI). For other areas, there are possibilities of financial instruments e.g. from the Investment Plan for Europe (the Juncker fund), which will increase the availability of broadband access on the entire territory of Croatia - Increase in the number of Internet users - Education and motivation of users for the use of e-services - Entry of new "digital natives", children raised with ICT - Reduction in the prices of electronic communications services - Abolishment of roaming costs in the EU - Establishment of a unique digital market in the European Union - Availability of financial resources through the Operational Programme *Efficient Human Resources* for the purpose of strengthening digital skills - Positive effects of the implementation of public administration reform and other reforms - Use of the resources of chamber systems for better interconnection of public administration with the entrepreneurial sector	- Delays in the introduction of organisational and institutional changes as well as necessary infrastructural investments will have a negative impact on the informatisation of the public administration and provision of new e-services, and will lead to withdrawals of resources intended for that purpose from European Structural and Investment Funds Change in government policies and priorities related to the public administration modernisation and informatisation process, and consequent discontinuity in the implementation of government programmes and projects - Lack of IT experts in the labour market, especially in the public administration - Resistance to the mentality shift from paper to electronic processing - Public fear over information security and personal data protection

6. e-Croatia 2020 – strategic objectives, activities and indicators

6.1 Strategic objectives and priorities

The goal of this Strategy is to ensure the development of the highest possible number of complex e-services oriented towards citizens and businesses in a standard manner. Complex, user-oriented e-services will be developed on an integrated national information system by respecting the basic principle of 'only once' (the citizen delivers data only once, after that they are transferred), defined by the National Information Infrastructure Act, in cooperation of all central state administration bodies.

In line with the public administration reform and the need to increase efficiency and reduce costs, the public administration will encourage a wider use of e-services by citizens and businesses with the aim to shorten processes and reduce operational costs.

The strategic goal of the Strategy is to develop e-services required by citizens and businesses, and thus to increase the number of citizens who use aggregate e-services of the public administration from 31.9% in 2014[85] to 65% in 2020, and the number of businesses which use public administration e-services from 92.7% in 2013[86] to 97% in 2020.

The Croatian position in DESI[87] has been at a very low level for several years (24th), and the successful implementation of the Strategy will enable better positioning in DESI, especially in the field of electronic public services.

For the purpose of meeting the objectives listed on page 3, more closely defined priorities are given below.
The priorities are as follows[88]:

1. **to ensure the sharing of services, hardware, licenses and software on the Cloud computing paradigm**
   a. to offer all public sector bodies the possibility to use shared, reliable and scalable information and communications infrastructure according to the cloud computing paradigm i.e. services through the Shared Services Centre, as a basis for the development and implementation of e-services,
   b. to give all public sector bodies the possibility to use reliable accommodation of their computer and communications equipment in the Shared Services Centre,
   c. to ensure the availability of consulting services through the Shared Services Centre as assistance in the development and implementation of new technological solutions.
2. **to ensure central (cloud) applicative solutions and platforms with the purpose to align the business/administrative procedures** of public sector bodies, and to increase efficiency and transparency of public administration,
3. **to ensure secure data exchange** for all public sector bodies **through a central interoperability system (Government Service Bus),**

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[85] DAE Scoreboard, Individuals have used Internet, in the last 12 months, for interaction with public authorities. It includes obtaining information from public authorities web sites, downloading official forms and sending filled in forms, All Individuals (aged 16-74).,

[86] DAE Scoreboard, Use of internet for interaction with public authorities, in the last calendar year before the survey, includes: obtaining information or forms from websites, returning filled in forms, following administrative procedures completely electronically or offering products in public authorities' electronic procurement systems (eTendering).

[87] https://ec.europa.eu/digital-agenda/en/desi

[88] Link to ISA[2]

4. **to ensure the development and establishment of a central operational location for the management of information i.e. cyber security**, for the purpose of continuous implementation of proactive and reactive measures for protecting the national information infrastructure, with a view to creating and sustaining a stable and secure environment for the provision and use of e-services.
5. **to secure** data and information to the Croatian Government which are needed **to make decisions based on relevant facts**,
6. **to ensure access to public sector data and information for everyone**, and to especially vulnerable groups of people in particular,
7. **to ensure access to public sector data and information for re-use** for commercial and non-commercial purposes,
8. **to ensure the collection and sharing of know-how and the raising of awareness of all stakeholders** about information and communications technologies and their application through the cooperation of public sector bodies,
9. **to ensure for all public sector bodies a secure communications infrastructure and online services for mutual data exchange, and the interconnection of the services through HITRONet, based on the defined interoperability standards, and**
10. **to ensure the establishment of a system which will ensure the continuity of e-service provision and preservation of critical national data in case of major computer security incidents and natural or other disasters.**
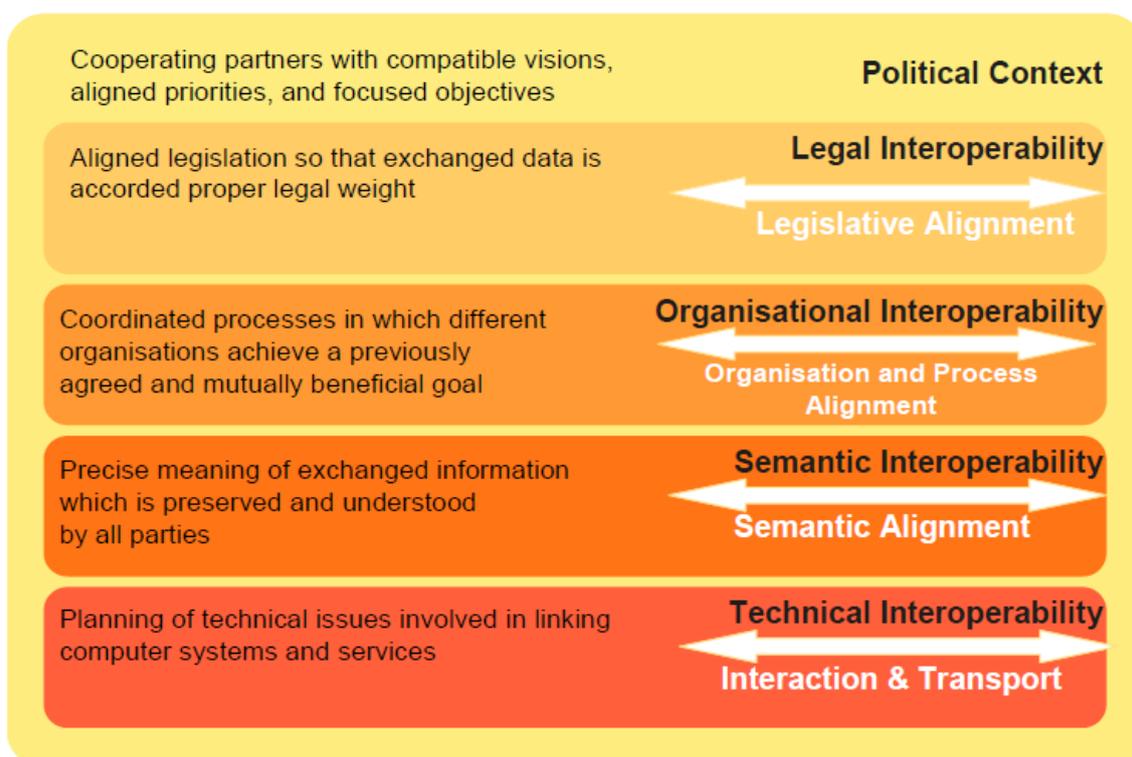

Figure 6 View of interoperability of partners and processes in the computerization of public administration

6.2 Area of operations of the Strategy

6.2.1 Activities of the Strategy with respect to external users (A2C, A2B)

The availability of e-services to citizens and businesses will reveal the benefits of ICT. Informatisation of public administration entails the need to strengthen the IT literacy skills of both users and providers of services. Strengthening of IT literacy skills among public administration employees is explained in more detail in section 7.6 of this Strategy. According to the indicators available for Croatia, citizens who use public administration services online do not possess satisfactory ICT application skills. Through the implementation of this Strategy it is envisaged, in all projects which include the development and provision of e-services, to include additional education and motivation for the use of e-services in order to strengthen citizens' computer literacy, which will contribute to the creation of digital society. This will also contribute to better effects of the measures implemented.

The area of operations for the establishment of **aggregate** user-oriented e-services (A2C, A2B):

The objective is to increase the proportion of public e-services in the overall number of public administration services. The development of the e-services system will be based on the European Interoperability Framework. Special attention will be paid to the political context as well as legal, organisational, semantic and technical interoperability.

An aggregate e-service means that once a user initiates a request in one place, it is processed entirely, regardless of the number of institutions and business processes included in handling the request.

Aggregate e-services for citizens and businesses are constructed by grouping basic public services which can be accessed in a secure and controlled way. They can be provided by several public administration bodies at any level, i.e. on local, regional, national or even EU level.

A typical aggregate service should appear to its users (bodies, businesses or citizens) as a single service. Behind the scenes, transactions may be implemented in the information systems of different countries, institutions and sectors as well as administrative levels.

Aggregation is accomplished via mechanisms tailored to specific business requirements. In general case, some business logic is required to implement the requirements, and the implementation mechanism could take several forms, such as orchestration or workflow engines.
Such services will be provided via the existing eCitizens portal or the eBusiness portal, which is being designed, and various thematic portals which already exist or will be developed.

Guidelines/principles for the development of aggregate, user-oriented public e-services must be developed in such a way that [89]
- **they integrate several simple services into an aggregate one**,
- they ensure access to user-friendly services in a secure and flexible way which enables **personalisation**,
- the services require only the information necessary for receiving a public service and the supply of information to administrations only once
- **business/administrative processes are informatised** only after their **simplification**,
- e-services are developed in such a way that a **counter clerk** can access them, bearing in mind regulations related to personal data protection, data secrecy and information security, only with individual consent of a citizen for the purpose of providing services to citizens with no IT

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[89] Link to EIF 2.0

skills,

- they ensure **equipment for the use of e-services** by citizens and businesses in offices and public premises,
- e-services are accessible via **different channels,** ensuring adequate multichannel business and technical support,
- e-services are **accessible regardless of the location** where an e-service is **initiated**, e-services are **designed in such a way that they support multilingualism**, in Croatian and, wherever possible, in English, too, and in other languages when it makes sense; i.e. that during the development of e-services attention is paid to the possibilities of introducing multilingualism,
- e-services are **standardised**,
- e-services are prepared in such a way that they can be **integrated with e-services on EU level**, and
- e-services are secure and their use is supervised for the purpose of user protection.

Inclusion of all users, eInclusiveness[90]

When introducing e-services, it will be taken into account that the solution ensures equal possibilities for the access of all citizens without discrimination.

Inclusion means allowing everyone to take full advantage of the opportunities offered by new technologies to overcome social and economic disadvantages. This means that it is ensured that people with disabilities and the elderly can use public services with the same service levels as all other citizens. The accessibility of e-service use will not be geographically limited. The entire territory will be covered, both administrative centres and rural areas of the Republic of Croatia.

Parallel with the increase in the number of services and in business and technical assistance for the use of the e-service palette, the need of citizens and entrepreneurs for information and guidance will grow as well. We can assume that users' expectations will grow in time parallel with the pace of technological development. It is therefore expected that the number of contact centres for user support will increase.

Access to public administration data

The system of open data data.gov.hr was implemented in March 2015, and it enables access to public sector information through the metadata catalogue. The open data system will be developed further in such a way that standards are defined, the application of which will ensure easier access and data processing.

It is necessary to ensure the full application of the Law on the Right of Access to Information, especially educating the public authorities on the obligation and manner of providing data for reuse, to identify the sets of data, monitoring and reuse of open data, the implementation of the appeals procedures and inspections, publishing contracts exclusive rights record, keeping exclusive rights, as well as the adoption of implementing regulations with regard to licensing fees and costs.

Spatial data of the public sector are accessible through the NSDI Geoportal, which was established in September 2014 and is oriented towards professional users who require spatial data.

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[90] http://ec.europa.eu/information_society/activities/einclusion/policy/accessibility/index_en.htm

6.2.2 Activities with respect to public administration (A2A):

Provision of quality public services requires a well organised and interconnected public administration. Nowadays, good organisation of public administration is based on interconnected interoperable information systems developed on shared resources.

The interconnection of the national information infrastructure will be done in accordance with the European Interoperability Framework in such a way to ensure the connection with the European administrative information space.

Decision making based on information and data is an important element of a regulated public administration. Therefore, an analytical system will be developed to support the public administration in the decision making processes. The system is going to ensure the preparation of reports and overview of public administration data.

Key activities until 2020 will be as follows:

- **in the technical part:**
  - to develop a central information interoperability system – a Government Service Bus (GSB) or a common basis for secure data exchange, which observes security requirements for the interconnection of systems, especially of authorisation systems with the corresponding security certificates. The GSB monitors and records all data exchanges across the entire system along with monitoring the validity of delivery; GSB must be developed in accordance with the Regulation on electronic identification for the establishment of the European Digital Single Market;
  - to develop further the Metaregister, a register listing all existing registers, their content and possibilities of interconnection with other systems. The interoperability system will be accommodated in the Shared Services Centre;
  - to develop further the Public Register for the Coordination of National Information Infrastructure Projects (Register ProNII);
  - to implement joint programming solutions for all common business processes / administrative procedures;
  - to apply the openness principle in the development of software systems tailored to meet specific requirements, in such a way that the developed code can be reused and shared;
  - to request periodically information from citizens and businesses on quality and required e-services, and to direct further e-services development accordingly;
  - to upgrade NIAS to support issuing credentials for all citizens (children, authorised persons, foreign countries, etc.), and to include NIAS in European identification and authentication systems, and
  - to develop a central analytical reporting system for all public sector bodies,
  - to continue developing HITRONet as a closed and secure information channel, and
  - to establish a central operational location for information i.e. cyber security, for the purpose of continuous supervision and prevention, as well as response to any threats to national information systems.

- **in the organisational part:**
  - to establish a body competent for e-Croatia affairs for monitoring the implementation of the Strategy, the head of which would be directly answerable to the Deputy Prime Minister and coordinate introduction of e-services in public

administration bodies, and which would cooperate closely with other bodies in charge of IT standardisation, popularisation and application in other areas;

- to establish the operational functioning of the National Information Infrastructure Council, which will supervise the development of national information infrastructure on the highest level;
- to establish a Shared Services Centre as the implementing authority for public sector informatisation;
- to align the role and position of Information Security Advisor in all public sector bodies, and to make them directly answerable to the heads of bodies;
- to establish internal organisational units in all public sector bodies and other bodies vested with public powers which will be directly responsible to the heads of the bodies and will be in charge of preparation and implementation of projects for the informatisation of the tasks and services of public sector bodies. Said obligation refers to the bodies which do not already have organisational units competent for informatisation, and
- to ensure the implementation of measures for ensuring cyber security in line with the Cyber Security Strategy.

- **in the legal part:**
  - to continuously adjust the regulatory framework to new technological solutions, business models and to an efficient response to the threats to information systems;
  - to apply the eIDAS Regulation;
  - to pursuant to the Law on the Right of Access to Information, pass by-laws which will further regulate the use of open data, and
  - to apply Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).

- **in the part concerning the strengthening of knowledge and skills in the public administration:**
  - to establish a staff education system for the management of ICT projects in the public administration and inclusion in project work;
  - to establish an education system for the cooperation of project staff;
  - to establish a system of education about the use of information and communications technologies, including the security aspect, and for the staff to educate citizens on the use of public administration e-services;
  - every ICT project will include the component of education for staff and users.

Benefits of the implementation of the Strategy

The implementation of this Strategy will bring four key advantages:

1. Administrative efficiency through:
   - transparency of administrative structures;
   - regulated and informatised internal processes of the public administration;
   - universal access to information via ICT solutions;
   - reduction of mistakes as a result of the application of ICT solutions;
   - decision making on the basis of facts based on information from the ICT system, and
   - possibilities of interconnection with European public administrations.

2. High quality and wide accessibility of public administration services by way of
    *   including citizens in decision making on necessary public services;
    *   including citizens in the process of creation of public services;
    *   standardising and developing services by respecting WCAG 2.0 international accessibility recommendations;
    *   possibility to access the public administration via different communication channels;
    *   possibility to use European administrative e-services in line with new EIF, and
    *   access of citizens and businesses to the open data collected in the public administration.

3. Reduction of costs
    *   for citizens and businesses, the introduction of eGovernment means reduction in time required;
    *   transportation and other costs involved in dealing with the public administration;
    *   reduction of the cost of supplying infrastructure due to the joint use of hardware, software solutions, network and their maintenance, and
    *   using professional capacities of the Shared Services Centre enhances the quality of the construction of national information infrastructure.

4. Benefits for economy
    *   the amount of working hours spent on cooperation with the public administration is reduced;
    *   the introduction of the Shared Services Centre opens up possibilities for the development of new applicative solutions;
    *   through the use of eGovernment, and especially through the implementation of the eSchools project, ICT skills and knowledge are acquired;
    *   opening up of data sets offers the possibility of developing applicative solutions for the market, and
    *   facilitation of access to services arising from the public powers bestowed upon chamber organisations, facilitation of access to information on legislation and its amendments, finances, tax issues, participation in drafting and comments to new legislative proposals, development of new products and product innovation, export, finding new markets and partners, meeting the need for new employees, e-learning for required skills and competences, promoting one's products and developing digital economy, especially for SMEs.

6.3   Indicators

6.3.1   Indicators of the use of public administration services online by citizens

Table 3 Public administration on the Web

Indicator	Source	2011	2012	2013	2014	2020[91]
citizens who used e-services in the past 12 months, out of the whole population	Eurostat	-	-	-	31,9%	65%
citizens who interacted with eGovernment by submitting completed forms in the past 12 months	Eurostat	-	-	-	12.8%	60%
user orientation of e-services for all	DAS	-	-	-	54.9%	80%

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[91] Expected value

life situations						
persons with basic or higher order ICT skills	DAS	-	-	-	39%	60%
persons with no or poor ICT skills	DAS	-	52.5%	-	-	70%
persons who believe that ICT skills are sufficient for the labour market	Eurostat	54.7%	-	-	-	90%
persons who make doctor's appointments online	Eurostat	-	-	-	5.4%	70%
persons who use e-services via the eCitizens system	e-Croatia Directorate	-	-	-	-	75%
citizens satisfied with the quality of public administration e-services[92]	e-Croatia Directorate	-	-	-	-	60%
number of new e-services funded under the ERDF[93]	e-Croatia Directorate	-	-	-	0	15

6.3.2 Indicators of the use of public administration services online by businesses

Table 4 Public administration on the Web - businesses

Indicator	Source	2011	2012	2013	2014	2020[94]
businesses which have used e-services	Eurostat	-	-	-	93%	97%
businesses which interacted with eGovernment by submitting completed forms in the past 12 months	Eurostat	-	-	-	12.8%	35%
businesses intending to use eProcurement	Eurostat	-	-	19.3%	-	45%
hospitals accessing patients' medical records online	e-Croatia Directorate	-	-	-	-	95%
businesses satisfied with the quality of public administration e-services	e-Croatia Directorate	-	-	-	-	60%
number of new e-services funded under the ERDF[95]	e-Croatia Directorate - OP CC	-	-	-	0	15

6.3.3 Indicators of the use of public administration services online by the public administration

Table 5 Public administration on the Web - use in public administration

Indicator	Source	2011	2012	2013	2018	2023[96]
Accessibility of all key cross-border e-services of the public administration in line with the list	DAS	-	-	-	-	

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[92] No initial data

[93] An e-service is an individual service which may be started via the Internet for citizens, it is added up to e-services for businesses

[94] Expected value

[95] An e-service is an individual service which may be started via the Internet for citizens, it is added up to e-services for businesses

[96] Expected value

agreed by all Member States						
Number of institutions connected in the SSC	e-Croatia Directorate - OP CC	-	-	-	40	300

7. Key areas of application and activities

The key activities will be implemented in the following areas:

- **Development of e-services** for citizens and businesses, and preparation of joint e-service functions as the key drivers of the development of aggregate user-oriented e-services.

- **Opening up administration and developing the civil sector** by establishing a system for the participation of citizens and businesses in the creation of public policies and strategies by the administration, by opening up data for reuse, and by ensuring education. **Industrialisation and interconnection of national information infrastructure** by developing a central interoperability system (Government Service Bus), and ensuring the accessibility of a secure, maintained national information infrastructure in the 'government cloud' in the most cost-efficient way possible by safe communication systems.

- Offering common functionalities through common shared services and the **establishment of programming solutions for the same type of tasks of public sector bodies**, such as document management, object management, workflows, public procurement, management and cost accounting and human resource management, in such a way that the tasks are standardized and thus ensure the possibility of control, change management and evaluation of the individual, bodies and the entire public administration by using **Business Intelligence** tools to a Croatian Government.

- **Intensifying public presentation of implemented e-services.**

- development of a digital platform for entrepreneurs and companies, with an emphasis on SMEs, connected to the national ICT infrastructure through existing public powers, and a new system of developing the services of chamber systems in a manner which will significantly simplify business from the very start and create an entire range of new services for a significantly more competitive Croatian economy.

A precise plan of activities with a schedule and financial plan will be demonstrated in the Action Plan for the Implementation of the eCroatia 2020 Strategy to be developed on the basis of this Strategy. The legislative framework will be adjusted where necessary for the purpose of the implementation of the above.

7.1 Establishment of e-services

A selection of e-services was made on the basis of the **Questionnaire on Citizens' Satisfaction with e-Services and Information**, EC guidelines for e-service development, requirements defined in the National Programme of Reform and Sectorial Strategic Plans, the objectives defined in the Public Administration Reform Strategy 2015 – 2020, and national priorities. The criteria from the Operational Programme Competitiveness and Cohesion for the Period 2014 – 2020 were also applied, more specifically, the number of citizens addressed by an e-service and its impact on economy. Attention was also paid to e-services which refer to vulnerable groups of citizens.

Consequently, it was decided to support e-service development in the following areas:

7. Key areas and activities

- eCustoms,
- eTax,
- eEconomy
- eBusiness, with an emphasis on eInvoice,
- eHealth,
- eEducation,
- eManagement (including planning and use) of spatial data and eEnvironment,
- eCulture,
- eTourism,
- eJustice,
- eInclusiveness of especially vulnerable groups, with an emphasis on the veterans and victims of the Homeland War,
- eAgriculture,
- eMaritime,
- ePension, and
- Joint Information System of Land Registry and Cadastre (JIS) with its subsystem One-Stop Shop (OSS), e-cadastre of infrastructure and e-cadastre of buildings.

It is envisaged to continue developing the following services, which will be accessible through eCitizens:

1. establishment of the "parent-child" mechanism – to meet the reported need of citizens to request documents for their children, we are developing an eCivilRegister application to enable citizens to obtain their children's documents from the civil registers, and are planning, at a later stage, to extend the "parent-child" mechanism to other services where there is a need for it
2. eFunds
3. e-services from the scope of the Ministry of Demography, Family, Youth and Social Policy
4. eExams (professional exams from the healthcare field)
5. Establishment of the Home for Homeless service in the AAI@EduHr system
6. City of Rijeka Information Service
7. ePermit
8. Lysacan – Register of Immunisation and Microchipping of Dogs, Cats and Ferrets
9. Court Clearance Certificate
10. Online registration of establishment for d.o.o. and j.d.o.o.
11. e-services for the public powers of chamber organisations

7.1.1 Monitoring of e-service development

The new e-services will be realised as aggregate e-services on the eCitizens and eBusiness platform as personalised services, and will rely on the use of the interconnected information systems of different institutions. In addition to facilitating communication with the public administration, they will shorten the time required for their handling, as the processes/administrative procedures will be regulated.

For the purpose of monitoring the satisfaction of citizens and businesses with eGovernment development, the central body competent for e-Croatia will prepare an annual survey of public satisfaction with e-services. The results of the survey will be published on the website of the Ministry of Public Administration.

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The main indicator of the quality of e-service development will be the number of citizens who use them and their satisfaction with the e-services.

The implementation of the Strategy will be monitored by the central body at the level of the Croatian Government competent for coordinating the development and monitoring of the implementation of public policies and strategies and the central body competent for e-Croatia.

7.2 Establishment of the Information Security Management System (ISMS)

The information security management system needs to be established in line with international standards, good practices and objectives laid down in the Digital Agenda of the European Union.

Action components in line with the Digital Agenda are as follows:
- Establish information security policy;
- Combat cyber-attacks against the information systems of state authorities, and
- Establish cooperation with the international community for the purpose of collecting information on cybercrime and current cyber-attacks

The information security management system will be based on the PDCA (Plan-Do-Check-Act) methodology, which means that the state of security will continuously be monitored and enhanced in accordance with risk assessments.

In addition to the methodological framework (umbrella security policy, specific security policies), a central operational location i.e. a centre for information i.e. cyber security will be established for the purpose of continuous implementation of proactive and reactive measures for protecting the national information infrastructure. The establishment of such a central location will facilitate the implementation of the PDCA cycle in line with global best practices and enable the development of secure eCroatia.

7.3 Key areas and activities for the development of e-services for citizens and businesses (A2C, A2B)

Preconditions for fast and quality user-oriented e-services are further development of the eCitizens platform and development of the eBusiness platform. It is already legally regulated that all e-services of public sector bodies must be provided via the eCitizens platform. Said platforms will be upgraded so as to include as many e-services of local and regional self-government as possible.

Key preconditions for e-service development are as follows:
- Electronic Identification (eID)
- Electronic Documents (eDocuments)
- Authentic Sources
- Electronic Safe (eSafe) and
- Single Sign On (SSO).

The platforms mentioned meet two of the key preconditions for e-service development, namely Electronic Identification and Single Sign On. The Electronic Safe must be aligned with the Cyber Security Strategy. The Information Systems Security Institute will get involved in setting up security requirements.

After the launch of the eCitizens platform it became evident that the successfully developed and implemented components of that system may be used for other purposes, too, such as the

7. Key areas and activities

preparation of the system intended for users from the business sector and other legal persons, with the aim to bring public administration closer to those users, too, via the Internet. The eBusiness platform would thus be based on three components:

- System of the Central Government Portal (gov.hr) – where information on public services would be published and to which online services of competent public administration bodies intended for the provision of electronic public services for businesses and other legal persons would be connected;
- National Identification and Authentication System (NIAS) – which would need expansion with additional functionalities to enable the identification and authentication of the authorised representatives of legal persons and their registration for electronic services intended for businesses and other legal persons. NIAS will not enable the authorisation of the authorised representatives of legal persons. This will be handled through the eAuthorisation system instead;
- Business User Box – which would be based on the functionalities of the Personal User Box, but would enable the viewing of information and messages sent from public administration to a business or other legal person.

Apart from enabling safe viewing and management of emails sent from public administration to a business or other legal person, the business user box will also provide access to desired e-services in the eBusiness system. At the moment there are some developed e-services intended for businesses, which can be found on the websites of individual institutions. This way of using e-services slows down business operations and makes them more difficult, so the eBusiness platform will make those e-services readily available, and all e-services will be accessed in a secure manner through a single point.

The eBusiness system is prepared as a demo system and needs to be perfected in order for it to be used by all businesses in its full functionality. It is envisaged that the finalisation and implementation of the system and improvement of the most important e-services will be financed under the ESF.

The demo system includes e-services in the areas of finance and taxes, current operations, operational finance and public procurement, and employment, in particular:

- Ministry of Finance
  - enables users to easily and securely retrieve data from their tax and accounting records, which show daily status and contain all changes made in the current year.
- FINA
  - the service of the uniform record of user accounts open with different issuers of credentials included in NIAS,
  - overview of information on the creditworthiness of a business entity,
  - submission and download of annual financial statements and other documentation which businesses are obligated to submit for public disclosure,
  - overview of the Registry of Outstanding Payment Orders, specification of the execution of payment orders and the sequence of payment orders, and the amount of outstanding debt resulting from overdue payments and
  - overview of one's own records of contracts and concessions concluded on the territory of Croatia.
- Croatian Health Insurance Institute
  - overview of the information on compulsory health insurance payers,
  - registration and deregistration of compulsory health insurance payers and
  - change of status of compulsory health insurance payers.
- Croatian Pension Insurance Institute
  - overview of information on employees with reported disability.
  - registration and deregistration within the pension insurance system.
  - change of status during insurance.

- o registrations of the beginning and cessation of business by an insurance payer and
- o change of data of insurance payers.
- REGOS
  - o download of electronic documents.
  - o submission of requests for the correction of the payments of Second Pillar contributions using incorrect payment reference numbers,
  - o checking insurance payers' membership of Second Pillar and
  - o overview of forms and payments with incorrect reference numbers.

In addition, in cooperation with the Croatian Employers' Association, Croatian Chamber of Economy and businesses, we are discussing the preparation and implementation of a questionnaire on key e-services for businesses.

The issue of eDocuments and Authentic Sources will be handled in chapter 7.4, which deals with the informatisation of the entire public administration A2A.

7.3.1 Development of eCitizens and eBusiness platforms

Further development of eCitizens and eBusiness platforms is directed towards developing and including all functionalities which can be used by several e-services. Informative contents of the platforms will be developed further in such a way that at least an active .pdf form will be included in each, which citizens and businesses will be able to fill out and submit.

An eCivilServant system will be established for the purpose of authentication and authorisation of civil servants' access to specific data and systems, identity management and communication among civil servants in different bodies, as well as other functionalities intended for the establishment and maintenance of interoperability.

Development of common functions which make up an integral part of e-services

The eCitizens and eBusiness platform will be developed further in such a way to include all the functionalities used by several individual e-services. At the moment, it is clear that for comprehensive processing of the requests of citizens and businesses it is necessary to resolve the central authorisation system for access to e-services by other persons or to individual services by different companies. This is important for access to e-services by other citizens (e.g. children, family members or other persons who are not IT literate). Such a system is important for access to the eBusiness system in which a person uses the same platform to access different e-services, possible for different companies with different authority.

Therefore, an authorisation system will be prepared, the issue of administrative fee payment will be regulated i.e. the eFee system will be developed as well as a joint eSignature system for signing requests.

In addition, a register of e-Businesses in Croatia will be established, which will comprise basic data about all businesses (enterprises, trades/crafts, independent professions, non-profit organisations, budgets and budget users, and others). A system of e-payments will also be established for public authorities, including mobile payment (payment of all types of fees at the location concerned, too, as support to e-fees), and the existing system for the collection of public charges, spot fines and administrative fees using payment cards will be positioned as a unified card processor for the purposes of collecting public administration revenue, based on the Decision on the establishment and maintenance of the system for the collection of public charges, imposed fines from the scope of the Ministry of the Interior, imposed spot fines from the scope of the Customs Directorate and administrative fees using payment cards (OG 51/15).

7. Key areas and activities

Authorisation systems will be built to resolve various relations between the authorised person and the authoriser in a uniform and standardised manner:

- from the field of family law (e.g. relation parent – child or guardian – child),
- from the business field (e.g. nominating authorised persons to represent businesses, providing authorisations to workers/employees for the performance of specific business activities) and
- from the social welfare field (e.g. authorisation of a guardian to represent a person divested of legal capacity).

Moreover, for complete processing of the requests submitted by citizens and businesses on the eCitizens and eBusiness platform, it is necessary to regulate the issue of administrative fee payment and to embark on the definition of the possibilities of conducting electronic payment of administrative fees through the establishment of the eFees system. It is necessary to ensure conditions for electronic payment of administrative fees regardless of the amount, in order to simplify and digitize business conditions in the Republic of Croatia. All services provided by public authorities to citizens and businesses should be offered on a single platform, information on services and charges should be communicated in a transparent manner, and different channels for their payment should be ensured. The system needs to be established in such a way that all electronic public services use a single centralised eFees service.

Personal User Box

The personal user box will be upgraded to allow unstructured communication of citizens and businesses with the public administration. This will ensure communication in which persons will be able to file a request to the public administration even before e-services for specific areas are realised. It will also be possible to sign documents electronically, which is ensured through the eIDs issued by the MoI since 10 June 2015.

Through the introduction of the eBusiness system, the personal user box for companies will be transformed into a box accessed by several persons in accordance with authority vested in them.

National Identification and Authentication System – NIAS

NIAS includes all credentials of public bodies (Croatian Employment Service (CES), Croatian Pension Insurance Institute (CPII), SRCE/CARNet, Croatian Health Insurance Institute (CHII)) which satisfy the security requirements for issuing credentials through NIAS (credentials in NIAS are converted to an ePass issued by FINA), along with the credentials of the Croatian Post Bank and the Croatian Post. The development of NIAS is directed towards including the credentials of real sector bodies, most of all the banking system. Security levels for identification and authentication in NIAS range from 1 to 4, in line with the requirements of the STORK project of the Commission, level 4 being so far the highest, and level 2 the lowest implemented level.

Currently, the eCitizens system is being adjusted to the eIDAS Regulation, which defines three security levels for access to e-services.

Moreover, access through NIAS will also be ensured for all Croatian citizens residing in Croatia or abroad, in person or by an authorised person through the eAuthorisation system. The portal will also be published in English.

Further development of the system will be directed towards mobile platforms and will follow new technical achievements in this area so as to ensure maximum user security.

The following electronic credentials are available through the NIAS system in March 2017:

7. Key areas and activities

- ePass user name and password – a system developed for eCitizens;
- mToken – application developed for smartphones - a system developed for eCitizens;
- smart card of the Croatian Health Insurance Institute (CHII);
- user name and password from the AAI@EDU system – existing authentication and authorisation system of science and higher education;
- HPB Token/mToken;
- ePost (user name and password) – Croatian Post;
- electronic identity card;
- FinaSoft certificate;
- Zagrebačka bank Token/m-Token;
- Privredna bank Zagreb mToken and card reader;
- Raiffeisen bank mToken/card reader/token;
- Kentbank SMS disposable pin;
- FinaRDC certificate and
- OTP bank Token/m-Token.

Standardisation of e-services

A standardised design of the e-service interface will be enabled in order to ensure user-friendliness. In addition, e-services should be realised in such a way to enable access via different channels (computer, mobile device, TV, Internet kiosk…)

The Ministry of Public Administration, in cooperation with the Central State Office for Digital Society Development, will issue detailed standards for e-service development, so that:

- each e-service is accessible individually via the eCitizens/eBusiness portal;
- each personalised e-service immediately has to load identification elements into an e-service, if the user set it up through NIAS,
- e-services are interconnected so as to resolve life situations, rather than according to institutional competence (horizontal e-services as opposed to vertical e-services),
- all e-services must be realised at least at the maturity level 3, 4 or 5 in accordance with the guidelines of the European Commission on the maturity levels of e-services,
- every electronic record which is equivalent to a document, issued electronically and printed is verifiable, and
- e-services do not condition their use on the purchase of a certain software product, i.e. that the use of open source products is enabled for the use of an e-service or technologically neutrality is ensured in any other manner.

Classification of e-services

a) according to the maturity of e-service

In this Strategy, an e-service of maturity level 3, measured from the lowest to the highest maturity of e-services according to EC guidelines, is considered to be an e-service. In a user oriented eGovernment we strive towards the realisation of aggregate e-services. Aggregate user oriented e-services mean that a user initiates a request which, to be processed, requires interaction of the business/administrative procedures of several public administration bodies. Construction of the system is possible through the integration of information systems in line with Figure 4 EIF HR 2.0. 3-6

7. Key areas and activities
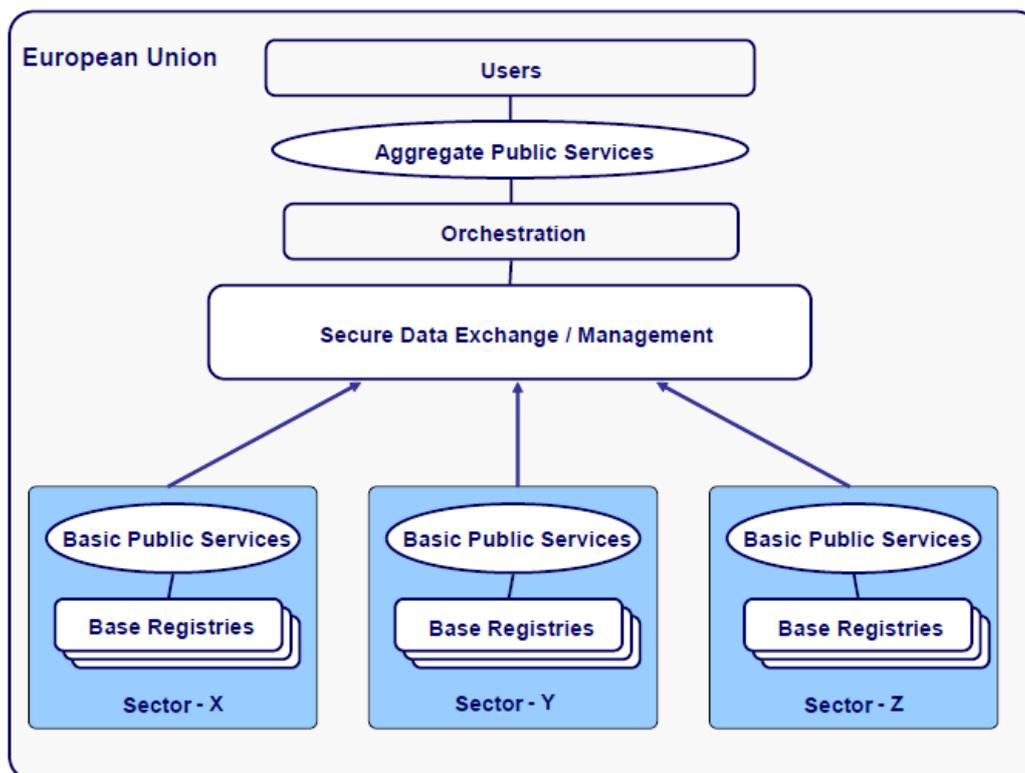
Figure 7 EIF HR 2.0 figure 3-6 A diagram of a European public service implemented by combining basic public services, in this case access to national base registries, implemented in different sectors. A conceptual model of aggregate public services.

b)   according to the characteristic of the business process

In this Strategy we define two types of e-services by the characteristics of the business processes: horizontal and vertical services.

- Horizontal services are those e-services which provide unique support to management of business processes determined by legal and administrative framework and associated processes which are applicable to all public administration bodies.
- Vertical services are those e-services which give support to management of business processes for a given administrative area and are developed specifically for a particular user or group of users in a particular administrative area.

Standard elements of ICT projects

Already in the preparatory phase of the development of new e-service provision projects, the following chapters must be covered:

- definition of needs for data interconnection with other public registers in the Republic of Croatia (web service development),
- definition of data in the developing system which are authentic and needed for other information systems in the Republic of Croatia (web service development),
- development of connection towards the Metaregister, if a new public register is being developed,
- e-services which the system can provide to citizens through the eCitizens platform, built in accordance with e-service standards,
- e-services which the system can provide to businesses through the eBusiness platform, once developed and implemented,
- consideration which data could be published as open data,

7. Key areas and activities

- inclusion of international accessibility recommendations WCAG 2.0,
- the manner of including staff/user education for the use of the system and
- insurance of external project audit.

This will ensure the inclusion of new ICT projects of the public administration into the overall Croatian e-service space.

To connect e-services with the European e-administrative information space, it is also necessary to:
- define needs for data interconnection with other public registers in the EU (web service development),
- definition of data in the developing system which are authentic and needed for other information systems in the Republic of Croatia (web service development),
- e-services which the system may/should provide to EU citizens via the eCitizens platform, built according to e-service standards with a multilingual user interface (at least in English, possibly in other languages, too, depending on the intended users of an e-service), and
- e-services which the system may/should provide to EU businesses via the eBusiness platform with a multilingual user interface (at least in English, possibly in other languages, too, depending on the intended users of an e-service).

Service catalogue

A service catalogue will be created with a list of all services for citizens and businesses provided by the public administration, where channels through which a service is accessible will be described, a list of processes along with an indication whether a particular process is informatised (for the purpose of regulating processes) and a list of institutions which provide a particular service and are a part of the value chain.

A list of all e-services will be published in the service catalogue, which will be searchable by life situations in which particular services are used, by alphabet and by institutions which provide them.

7.3.2 User e-services by sector (A2B, A2C)

The development of user e-services will go in the direction of the following key areas:

Rule of law and security

- **eGovernment** – Opening up of e-communication towards civil registers, Citizenship Register and the registers of non-profit organisations.
- **Population** - Establishment of a population register as a key administrative register with a view to adequate maintenance of other state records.
- **Internal affairs** – All users will be able to submit requests for the issuance of documents electronically. In addition, it will be possible for some documents to be issued electronically. Public authorities will have electronic access to necessary data from official records.
- **Justice - The justice field will be advanced by introducing e-services for the delivery and service of electronic documents (eDelivery and eSubmission), by introducing electronic signature and electronic payment.** The services developed will be accessible to users via platforms eCitizens and eBusiness. In addition, efforts will be invested in interconnection with EU registries in line with directives.
- **Real estate** – The establishment of the IT solution eRealEstate will be continued for the purpose of entering data in the Sales Prices Filling System, development and overview of the Plan of Approximate Value, issuing excerpts from the Plan and the Filing System in line with regulations in the field of real property assessment, with the possibility for automatic data interchange with key users in the entire country (counties and large towns/cities) and the

7. Key areas and activities

> possibility to use the data as a basis for the tax calculation. It is planned to conduct a needs analysis for all stakeholders for the purpose of efficient land data management, and to define interfaces and necessary data sets which will be available for state administration bodies and commercial users. Additional JIS (land registries and cadastre system) modules will be established, along with a registry of expropriated real property. Information systems for geospatial data management, availability of spatial data via network services, and the e-cadastres of buildings and infrastructure will be further developed and improved. The development and implementation of additional JIS modules includes an applicative solution for real property assessment as the basis for tax calculation, and the registry of expropriated real property, which will be connected to the records of the e-cadastre of buildings and the records on spatial units from the Spatial Units Register.**Construction, construction products, energy certification** – New databases are being developed which should be connected with the ePermit system in the future, and the data should partially be accessible to the public on the ministerial website (construction products database, contractors database, auditors database, database of the information system for issuing Energy Certificates, database of public utility contributions and fees, database of certified installers of renewable energy systems, computer programme for the calculation of the energy properties of buildings).

- **Physical planning** – Strengthening the capacities of the Croatian Institute for Spatial Development and further development of the Physical Planning Information System (PPIS), which is designed to be interoperable, with the task to connect all systems which contain spatial data in accordance with valid regulations. Establishment of the register of buildings and apartments, which would enable the creation of a fiscal cadastre and better quality spatial management through the use of existing systems, in accordance with the INSPIRE Directive.

- **National security** – Clear security requirements will be prescribed for electronic services, which will be in line with requirements related to the categories of data used within service provision, and based on unified ICT security measures for their realisation. National security field will be elevated to a higher level by adopting a plan for enhancing electronic operations with a view to respecting the complexity of relations in cyber space.

By the end of 2017, 25% citizens will have eID Card. By the end of 2018 parents will have started to register newborn children in the public administration system electronically. Also, a central system of forms for electronic initiation of requests will have been established. By the end of 2018, the Joint Information System of Land Registries and Cadastre will have been upgraded with additional functionalities and modules, and a registry of expropriated real property established. In accordance with the INSPIRE Directive, access to the spatial data of the public sector via the NSDI Geoportal will be enhanced and increase the number of access by 15%. The Physical Development Information System will be enhanced as the central location for viewing and access to data from the physical development field. Using unrelated geospatial data, the environmental management system will be enhanced and new e-services developed to enable users to submit requests electronically and to retrieve data from the system. The portal will enable search and overview of data, and open data on environment will be published. By the end of 2018, the court case management system (eSpis) will have been enhanced and a uniform information system for the purposes of prison administration implemented. Computer infrastructure will have been upgraded, and the equipment of the meteorological network comprising a certain number of air quality monitoring stations will have be modernised and enhanced by the end of April 2019. By the end of 2020, through the eCitizens and eBusiness platforms, public administration will have increased the number of available e-services which enable users to submit requests and issue documents electronically. Through the project of establishment of one-stop shops, state administration offices in counties will have been informatised, equipped 15 one-stop shops and developed 3 applications. In one-stop shops, apart

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from the possibility to use e-services, assistance will be available to users who are not computer literate, in order for them to access eGovernment.

Labour market and employment

- **Labour and employment** – in the employment sector, the services of the Croatian Employment Service will be enhanced in the area of applicative support intended for job seekers, the unemployed and employers for their independent use (eIntermediation, social networks, integrated contact centre, etc.) or as computer-assisted services (statistically assisted profiling, self-assessment tools, eConsultation through a remote office). An integral part of this approach is an analogue development of the services system for employers: announcements of vacancies and eIntermediation, through employer authentication by the certificate already used in other processes related to employment, which will both save time and increase the efficiency and security of services. The area of labour and employment will be advanced by upgrade and further development of the Croatian Qualifications Framework (CQF) portal, which provides information and guidelines to applicants who would like to develop new professional and qualifications standards by using the mechanism of the new Croatian Qualifications Framework. The portal will provide information on 25 sectors of the CQF: sectorial profiles, labour market indicators generally, and the positions of occupations and qualifications belonging to each sector in the labour market. Users will be able to view employment rates by occupation or group of occupations, by key industries in which the occupations are in demand, and balance between labour supply and demand on national and regional level. Also, it will be established and information system CQF Register. The CQF will develop its functionalities further through various registers (human resources and similar). The establishment of a vacancies register would contribute to the quality of employment policy and better labour market needs assessment.
- **Labour inspection e-services** with the purpose of submitting applications and forms in the area of labour relations and occupational safety and health, i.e. for reporting breaches of regulations.
- **Pension insurance** - in addition to existing services, the level of e-services will be developed further with an emphasis on ensuring that all requests for the exercise of rights are submitted electronically by using authentication through NIAS, it will be ensured that the creation of documents from the pension insurance system is modelled on the electronic record of the legal employment status, continuous increase of electronic data exchange. Moreover, one of more significant novelties according to new EU regulations in the field of coordination of the social security system is the obligation of Member States to get involved in electronic data exchange. For that purpose, a consolidated system called EESSI (Electronic Exchange of Social Security Information) will be established at the Union level, which will enable electronic data exchange and communication among competent Member States institutions in a safe and reliable manner and enable EU citizens to exercise their rights more quickly.

By mid-2018, data interchange with the European Job Mobility Portal will have been improved. Through the establishment of an eLearning portal and development of a training register the capacities of the Labour Market Centre of the Croatian Employment Service will have been additionally strengthened. In the field of pension insurance, e-services will be developed which will enable users to submit requests and issue documents electronically and increase by 50% the usage of ePension. By the end of 2018, the Portal of the Croatian Qualifications Framework will have been enhanced by adding additional information and guidelines, and the applicative solution for the work of CES consultants will have been upgraded and modernised. Users will have an overview of statistical data on national and regional levels. A job register will be established, which will contribute to a better quality employment policy, and will enable further development of the Portal and

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availability of new e-services. By the end of 2018, an integrated information system will have been established to provide support to the work in the area of professional rehabilitation and expert evaluation of disabled persons, and their employment.

Education Electronic Register of Pre-School Institutions and Other Legal Persons Delivering Pre-School Education Programmes - its purpose is to register kindergartens, primary schools, associations, enterprises, libraries and other legal persons delivering educational programmes for children of pre-school and early school age with the approval of the Ministry of Science and Education. The application is envisaged as a digital database on the number of children included in the programmes and the number of educational groups, types of programmes, number of educational staff, structure and square footage of facilities, data on founders and principals/directors, and the data may be used in various forms of reports and statistics. Kindergartens and other legal persons enter all the above data in the electronic register every academic year by using the usernames and passwords assigned to them.

- **eSchools –** The project is a response to the perceived need for a systematic approach towards the introduction of ICT in the educational system through the establishment of a system for the development of digitally mature schools and the proposal of a schools' digital maturity strategy. The project will include the development of the digital competencies of teaching and non-teaching staff, development of digital education contents, a number of services for quality management of teaching and business processes in schools, and local infrastructure in 60% of primary and secondary schools in Croatia, including the furnishing of schools and teachers with ICT equipment by 2023.

- The service of eClass Register, a web application for keeping the class register in electronic form, will be developed further. The application offers all the functionalities of the existing class register along with additional functionalities enabled by ICT use such as automated notices, alarms and reminders. the application makes various reports available, which enable analyses during pedagogical monitoring and development of reports for school staff meetings. An eClass Register is also accessible to pupils and parents, enabling them to view grades, class absences and notes entered by teachers in the system of eClass Register.

- **eRegister** is a centralised system of the Ministry of Science and Education, which serves to record the most important data about primary and secondary school pupils and staff. The application is envisaged as a digital form of the register in schools which is filled out manually. At the end of an academic year, it is possible to print out report cards on the basis of entered data on students' education.

- **eEnrolment in secondary schools** - a central system of applications and enrolments in the educational programmes of all secondary schools in the Republic of Croatia (NISaeSS). The system is linked to the eRegister, i.e. draws information about primary education of pupils, pupils' personal information and the list of all schools and educational programmes from the eRegister Applications for programmes are submitted online, and every pupil can apply individually and continuously view the rankings. At the end of the enrolment process, the personal information of pupils who have enrolled in secondary schools is also electronically submitted to the eRegister.

- **eEnrolment in higher education** – a central information and administration service (NISaHE) which facilitates application and enrolment in higher education institutions for students interested in taking the State Matura Exam and continuing their education on the tertiary level. The system covers the entire process from the application for the State Matura and overview of the results thereof, and the application for study programmes and overview of the results by chosen study programmes to the exercise of the right to enrol in higher education institutions.

- **Virtual environment for e-learning in the education system**, but also in the public administration system - the **Loomen and Merlin systems** – the goal is to ensure further

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development and enhancement of the services provided by Srce and CARNet in order to enable the inclusion of all modules offered by higher education institutions and as many courses of primary and secondary education institutions in the virtual e-learning space. In addition to the presence in virtual space, teachers will be encouraged to change and adapt their teaching methods by introducing ICT so as to achieve education based on the outcomes of learning, where pupils and students are in the centre of the educational process, and thus to increase the quality of education. Through the national eLearning Centre (located in Srce) and CARNet user support services a quality and constantly available support will be ensured to teachers for the application of new technologies in education.

The Electronic Register of Pre-School Institutions and Other Legal Persons Delivering Pre-School Education Programmes will serve to register kindergartens, primary schools, associations, enterprises, libraries and other legal persons delivering educational programmes for children of pre-school and early school age. Under the eSchools project, adequate ICT infrastructure will be built, existing e-Services enhanced and new ones developed for schools included in the project. Digital curriculum content will be developed, and digital competences of teaching and non-teaching staff strengthened, in order to increase the level of digital maturity of Croatian schools. A registry of the Croatian Qualifications Framework will be established. It is planned to implement the system by the end of 2017, and it will enable the submission of requests for the entry of educational outcomes in the registry as well as access to publically available information. eSchools pilot project will be carried out in 140 schools and will included 920 teachers and 6000 pupils who will use procured ICT equipment, 16 digital educational content and 2500 educational employees who will participate in professional trainings.

Science and higher education

- **Croatian Science and Education Cloud – CRO-SEC –** The goal of the project is to build a computer and data cloud which will constitute an integral component of national research and innovation e-infrastructure. It was designed as common infrastructure which will enable the services of virtual computer and storage resources on the principle of cloud computing, grid resources, high performance computing resources, large storage capacities and interconnection with European e-infrastructures.
- **Dabar** - system of digital academic archives and repositories as the central national open research infrastructure for the storage and publication of digital contents, with an emphasis on open access
- **Higher education records** – kept for the purpose of identifying a student's right to government-funded studies and other rights, policy planning and monitoring of higher education, public information, planning and monitoring of the network of higher education institutions and study programmes, production of analyses, statistics and conduct of research in the field of higher education, implementation of External Quality Assurance procedures, and development of analyses and statistical reports on higher education.

The Croatian Science and Education Cloud (CRO-SEC) will be established. This implies the development of a computer and data cloud as the key component of the national research and innovation eInfrastructure. In addition to the establishment of 6 seats of CRO-SEC, infrastructure for cloud computing, high-performance computing of 25000 processor cores and high-capacity storage of 7 PB will have been established by the end of 2023. CRO-SEC will be connected to European eInfrastructures as well. In addition, records will be kept in higher education for the purpose of determining a student's right to government-funded studies and other rights, policy planning and monitoring of higher education.

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Sport

- The general goal of the establishment of the National Information System in Sport (NISiS) is to ensure permanent and structured collection of data and information about all the segments of sport in Croatia. Furthermore, the objective is to enable the Central State Office for Sports and other public bodies competent for planning the development and management of the sports system on all levels as well as the general public in Croatia to systematically monitor and inspect all major indicators in the Croatian sports system. The NISiS project will put in place an infrastructural, data and information backbone with the task to connect key stakeholders in the Croatian sports system on all the above levels. The project is envisaged as a backbone for the functioning and mutual communication and coordination of all key stakeholders in the sports system on national level.

> The goal is to establish a system which will benefit the Central State Office for Sports and key stakeholders in the sports system as well as the general public and citizens by developing e-services and enabling access to all relevant and timely information and data. Moreover, the NISiS system will provide a significant contribution to raising the transparency level of the entire financing system in sports, including both public finance and donations, sponsorships and similar.

Cultural and national heritage

- **In the field of cultural and national heritage**, the infrastructure for digitalisation, use and preservation of digital cultural heritage will be consolidated and strengthened, thus enabling coordination and management of digital cultural heritage and access to e-services relating to cultural and national heritage. Digitalisation of cultural heritage opens up significantly greater possibilities for its use in the creation of new products and services, for the creation of services based on contents from various sources, for overcoming local and domain boundaries and for intersectorial networking as well as the creation of a critical mass of easily accessible cultural contents for reuse in education, art, science and economy. Digitalisation, online accessibility and long-term preservation of digital contents are and will be the necessary requirement for access to cultural contents and knowledge for everyone, as well as for the promotion of national heritage, identity and diversity in the European environment.

> A central repository will be established, which will contain digitized and cultural heritage and manage it. Additional e-services will be created, and the possibility of further utilisation for the purpose of creating new products and services will be increased. The project is planned to last until the end of 2020.

Health care sector

- **Central health care system informatisation projects**
- Under the **central health care system informatisation** project, projects directed towards increasing interoperability of the information systems of key stakeholders in the health care system will be implemented, as well as projects for modernisation and enhancement of the business processes necessary for efficient and sustainable operation of the Croatian Health Insurance Institute (CHII).
- Through projects related to the **establishment of standard platform solutions for operations support** activities will be conducted with the aim to increase security of the online interconnection of health care institutions, as well as to develop new components of the eHealth system and eliminate identified deficiencies, and to enhance and unify the quality of existing information systems in hospitals.

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- Through the activities aimed at **developing the legal and institutional framework** an institutional basis for the management of existing systems and eHealth projects will be created, and the necessary functionalities of solutions within eHealth will be standardised and certified.
- **Other project initiatives**, which cover projects such as the establishment of a communication network for the needs of emergency services, telemedicine development, and informatisation of the parts of health care system which have not been informatised so far, as well as the launch of knowledge management i.e. continuation of the expansion of the system of lifelong professional development of health care practitioners.

> In the health sector, projects aimed at building the central information system and strengthening infrastructural capacities will be implemented until 2020. Some of the major projects among them are the establishment of the system for rational, professional and economical medication management, the system of electronic health record, which will be used by at least 30% of health care institutions for 20% of patients. eGuidelines Portal with interactive content, which will enable access to 30,000 medical staff and will form the basis for 25% of decisions in the health care system. Through the eHospitals system, up to three standardised solutions for the support to hospital processes will be established, and the integration of 260 health care institutions in eHealthNet is underway.

Social welfare services

- The social welfare information system contains detailed data on the users of the social welfare system. Users include a wide range of citizens. Information in the system is an appropriate data foundation for e-services intended for the users of the system and other citizens. The concept of services is being elaborated and greatly depends on the social welfare system, which has been in development for a longer period now; it is connected to all relevant data sources in other state administration bodies through which users' property status may be established. The plan for 2017 includes connection with the eCitizens system. Said services would primarily be intended for the users of the system, so that their development was not a priority in the past period, but with the inclusion of the entire business process of social welfare in the application, the focus will shift to the accessibility of information to citizens, which is most convenient to release through models developed for a wider range of users in the manner which has already been tested in other state administration bodies.

> By mid-2017, an e-service of the eCitizens system will have enabled the users of the social welfare system to view their socio-economic status through a uniform document. By mid-2018, a Single Benefits Centre will have been established, as the single administrative point for the provision of services to citizens in the area of exercising rights to different benefits which include a social component.

War veterans

- **eInclusion –** the development of a central information system for the Ministry of Croatian Veterans through the integration of all data with a view to enabling interconnection and interoperability with other important stakeholders, which will strengthen ministerial capacities and ensure timely and quality support for the population of veterans and victims of the Homeland War. The projects planned include the interconnection of all records on the war veteran and victim population kept by the Ministry of Croatian Veterans into a single database and supplementation of existing databases. In addition to the project for the development of an Integrated Information System which, inter alia, includes the improvement of the placement of

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products and services of veterans cooperatives to increase their competitiveness, the Ministry of Croatian Veterans will implement projects to develop:

- e-services related to the preservation of values arising from the Homeland War and to the exercise of the rights of the war veteran and victim population by digitizing archival material from the Homeland War,
- e-services for the improvement of the placement of products and services of veterans cooperatives to increase their competitiveness,
- e-services related to veterans' centres.

Existing databases will be consolidated into an integrated information system of the Ministry for Croatian Veterans, thus ensuring the efficiency of the Ministry in providing services and care for the war veterans and victims of the Homeland War. A fully integrated information system will have been established by the end of 2020. A web-based application will be established, enabling the keeping of complete records of cooperatives and their work, which will include a webshop for the purpose of more efficient placement of their products and services. By the end of 2022, important archival documentation from the Homeland War will have been organised, indexed and digitized, and a database of archival documentation will have been developed. By mid-2023, an information system for the efficient management and interconnection of veterans' centres will have been established.

Taxes and customs

- The **Tax Directorate** is continuously developing e-services intended for tax payers. Annual development plans and amendments of primary and secondary legislation define the scope of e-service development, which is visible in the increased number of services (forms) available online (eTax). The plan is to develop G2B services, which will enable tax payers' integration with the Tax Directorate with a view to maximum simplification of the electronic submission of forms and publically available data exchange.
- The eCitizens project introduced the service of the so-called "e-PKK" – Tax and Accounting Record, which enables all citizens to retrieve data from their tax and accounting records, and the service of the so-called "e-JOPPD" form, which enables all citizens to view total income and deducted contributions and taxes by individual payers, and the development and implementation of further services for citizens is underway.
  The Tax Directorate will continue to develop and implement additional services for citizens (A2C), businesses (A2B) and other state and public administration bodies (A2A) related to the overview of tax data, the simplest possible electronic submission of forms, and exchange of publically available data.
- Until the end of 2020, the Tax Directorate will continue to modernise the information system supporting all business processes. Modernisation of the information system will enable increased effectiveness, creation of new e-services for citizens and businesses, and thus facilitate their compliance with tax obligations.

Excise duties and special taxes

- The **Tax Directorate** is continuously working to strengthen e-business by introducing the **eCustoms** and **eExcise** systems, and providing new e-services to businesses; it is connecting its information system with the information system of the European Commission, as well as the customs administrations of Member States. Projects realised in the coming period will ensure the development and upgrade as well as full implementation of the eCustoms and eExcise systems envisaged by the Union Customs Code and the EMCS Master Plan, which will enhance and increase the efficiency of customs and excise procedures.

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By the end of 2017, a customs competency framework will be developed. At the beginning of 2018, a modern technological solution will be implemented to enable simpler horizontal and vertical communication of customs officials. By the end of 2018, customs services and businesses in all Member States will be able to access the common interface of the European Customs Information System. Through the implementation of various projects, to be realised by the end of 2019, the eSupervision system will be standardised and the implementation of inspection procedures facilitated, the eGoods system will be enhanced the process and status of temporarily seized goods, the eMisdemanour system with which will be enhanced to ensure the alignment of proceedings, will continue with the modernization of the Collection and Bookkeeping system, the eExcise system will be improved according to changes in the law and Risk Management system in order to harmonize procedures and types of control over the proceedings of customs officials will be aligned. By the end of 2020, computer literacy skills and linguistic skills of 2000 customs officials will have been strengthened and the level of their competencies increased and appropriate eLearning modules will have been developed. Necessary equipment and IT tools will have been procured for the implementation of inspection activities in the area of eCommerce and economic activities online. By the end of 2018, a higher degree of mobility during the use of the information system will have been ensured for officials engaged in field work and the information security management system within the customs information system will have been enhanced. By the end of 2018, training of forty tax inspectors on handling the equipment will have been delivered, and human resources of the Tax Directorate additionally strengthened. By the end of 2019, the information system for the application and issuance of approvals for the organisation of prize contests will have been developed. Furthermore, the introduction of the eCustoms and eExcise systems will offer businesses new e-services, and the systems will be interconnected with the European Commission system and the customs administrations of Member States.

Agriculture and rural development

- Support to the population of rural areas engaged in agriculture in agricultural management and e-sales development; development of services which provide support to producers of food and agricultural products, including services which support international trade in food and agricultural products; development of services which support activities related to production, trade (domestic and foreign), market preparation and storage of agricultural food products,
- development of e-services which enable access to and viewing of: agrometeorological and statistical data, market information as well as assistance and incentive mechanisms, laboratory test results, data from public registers referring to farmers, veterinarians, fishermen, producers and entrepreneurs,
- development of e-services related to document transfer and processing, concession management in agriculture, hunting and fisheries, management of processes regarding financial support allocation under assistance programmes co-financed by the EU, and food safety mechanisms, especially for farmers and agricultural producers, entrepreneurs and citizens, and
- development of e-services which support innovations directed towards efficient and sustainable agriculture and cooperation among institutions in agriculture, water management, veterinary medicine, fisheries, hunting, forestry and rural areas, towards the establishment and functioning of the operational group of the European Innovation Partnership, through the integrated electronic system of agricultural consulting and knowledge transfer.

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The services will target farmers, entrepreneurs in the agriculture and food sector, and agricultural experts and scientists.

> Strengthening of electronic public administration in the Republic of Croatia aimed to improve living and working conditions for farmers and agricultural producers, entrepreneurs and citizens in rural areas. To them, through the platforms e-Citizens and e-Business by the end of 2018, will be available variety of complex user-oriented e-services which will enable communication with the public administration.

Tourism

A priority measure in the tourist sector is to ensure ICT preconditions for the development of an electronic tourist information system, i.e. of the central integral information system with consolidated information about tourist boards and all registered stakeholders in the tourist sector for the purpose of establishing an efficient and comprehensive tourist policy, ensuring higher service quality and greater satisfaction of tourists, businesses and citizens. The Ministry of Tourism is shifting towards electronic media in the sense of innovation of the promotion mix, which implies putting a significantly greater emphasis on the so-called 'new media' i.e. the Internet and mobile devices as channels with an extremely fast growth in the number of users and a series of advantages such as accessibility, informativeness, possibility of multimedia communication and possibility of the sales of services. Special attention in this process is given to quality control and enhancement of websites in the Tourist Board system, more intensive use of the social web and more intensive mobile application development.

The need for the establishment of a higher quality database of the tourist sector was identified a long time ago. At the moment, the Ministry of Tourism only has data on arrivals and accommodation of tourists, which are collected by the Central Office of the Croatian National Tourist Board. It is necessary to achieve higher quality interconnection with the CBS, the Ministry of Finance, the Tax Directorate, the Customs Directorate and other institutions with the aim to unify and consolidate data related to tourist traffic and the tourism satellite account.

The project "Croatian Digital Tourism" is oriented towards creating an integrating ICT platform between different databases and stakeholders in tourism with up to date and online solutions, and its owners are the Ministry of Tourism and the Central Office of the Croatian National Tourist Board, in cooperation with the CBS and all stakeholders in tourism.

One of the objectives of the project Croatian Digital Tourism is the informatisation of the consolidated processes of institutions related to tourism. This provides citizens with a central digital location for all information and services from the scope of the Ministry of Tourism and related institutions in the field of tourism.

Croatian Digital Tourism will include business processes and services in tourism such as the categorisation of catering and hospitality facilities, guest check-in and check-out, collection of sojourn tax, incentives in tourism, processes for issuing decisions or permits to service providers in tourism (e.g. tourist guides), conduct of inspectional supervision, public information, statistical reports, etc. The solutions developed must be interconnected and function as one functional whole. Citizens and other service users must be ensured transparent work and online monitoring of their requests and issued decisions.

The goal of the establishment of the new information and communication system under the Croatian Digital Tourism project is to simplify and modernise administrative procedures, processes and services in tourism, and to enable better and higher quality public information by consolidating activities within the central digital platform.

7. Key areas and activities

Necessary adjustments of the legislative framework for ICT use through e-services for tourism will be made during 2017. By the end of 2018, a register of catering objects, a register of providers of services in tourism and a register of tourist boards will have been developed and implemented, and it will be possible for the providers of services in tourism to use an e-service for check-in and check-out of guests. By the end of 2019, additional e-services for tourism will have been developed and connected to other public administration systems for the purpose of data interchange, and additional awareness-raising and training activities for public service employees and e-service users in the field of tourism will have been implemented.

Maritime Affairs

- development of new e-services, as well as raising the level of awareness of the existing ones in order to increase the efficiency of maritime administration and competitiveness of the Croatian economy, and to simplify the access of citizens and businesses to information and their fulfilment of legal obligations towards state administration bodies. A special emphasis will be placed on further development of the system,
- eNautics as the national portal for mariners, and
- development of the CIMIS system as the national *single window concept* with respect to the reporting obligation for ships sailing in and/or out from the harbours of Member States, and its further integration in European Union systems, development and upgrade of the services eSeaman, eBoat, eJadrolinija, etc.

By the end of 2017, the Croatian Integrated Maritime Information System (CIMIS) will have been upgraded. The existing eMaritime, eVessel and eNautics systems will be additionally upgraded. The eMaritime system and 5% of seamen which will use it by the end of 2017, will be connected with the health and pension insurance systems and the Tax Directorate, what will enable seamen to use e-services related to the seagoing service. Through the upgrade of the Maritime Craft Register, the Register of Boats and the Register of Yachts, and the upgrade of the invoicing system for charges in maritime transport by mid-2018, charges in maritime transport will be invoiced via the eCitizens system. The eNautics system will have been interconnected with the Ports Register by the end of 2020, and online dock reservations will have been enabled via the nautics portal for the nautical part of ports open to public transport.

Statistics

- **Development of a standard platform for online questionnaires**

It is planned to develop a unified online system for collecting statistical information for businesses.

One of the tools for a significant reduction of the costs of the Croatian Bureau of Statistics (CBS) is the application of an online questionnaire when conducting various kinds of statistical research. In the last few years, the CBS has adopted a policy of replacing research based on hard copy questionnaires with research based on online questionnaires. Such a system of conducting statistical research has proved far more user-friendly, as it is much less time-consuming and more cost-effective. However, over the years, different technical solutions have been developed, which, given the number of online questionnaires, has led to some difficulties (different designs, different types of login, especially for large companies, different functionalities). For that reason, the CBS launched the project "Development of a Standard Platform for Online Questionnaires", which is due to start in July 2017, and will last 21 months, financed by EU grants under the project of the Ministry of Labour and Pension System.

- **Upgrade of the statistical geoportal**

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It is planned to upgrade the statistical geoportal GeoSTAT, which will, among other things, enable the distribution of statistical data in spatial formats and via web services.

The CBS developed the statistical portal GeoSTAT in late 2015, thus enabling the use of statistical data in an interactive manner. The application enables cartographic presentation of statistical data in such a manner that the selected spatial level is combined with selected statistical data in high detail. It has become necessary to upgrade the portal, since the development of web services on other geoportals would enable the use of layers containing statistical information. The project is planned to be financed from the State Budget during 2018.

- **Adaptation of the eCitizens system for the purposes of conducting the 2021 National Population and Housing Census**

It is planned to enable electronic collection of data for the 2021 Census, so the eCitizens system needs to be upgraded for the purpose of data collection, and the NIAS system should be used for the authentication of citizens for the purposes of the Census.

In 2021, the next National Population and Housing Census will be conducted, and electronic data collection as well as the use of data from other administrative records is planned for that purpose. After 2021, basic information on population will have to be submitted to EUROSTAT on a yearly basis (not every ten years, like now), which will not be possible unless basic registers are established and systems are developed which will enable self-completion forms.

> The project "Development of a Standard Platform for Online Questionnaires", intended for the implementation of various kinds of statistical research, starts in July 2017; during 2018, statistical geoportal GeoSTAT will be upgraded for the purpose of distributing statistical data in spatial formats via web-based services, while for the 2021 Census it is planned to collect data electronically and to use data from other administrative records.

Economy

- business user box, the central location for the exchange of structured and non-structured information and documents between public administration and businesses, and the definition of standards for information exchange between businesses,
- Integrated e-public procurement,
- electronic payments platform,
- integrated business operations and a single point of communication and implementation of services for all existing and future users and organisations from the private sector, ensuring end-to-end services in all stages of business development,
- the system of national business identification and authorisation of individuals in the context of a business, taking into account multiple and changeable roles of the individual in an organisation and the needs for interconnection and integration of businesses,
- eCourt Register – it is planned to conduct an analysis of the needs of all stakeholders for the purpose of the efficient management of data on the subjects of court register entries, to establish electronic registration of businesses, provision of additional electronic services for businesses and citizens, and interconnection with the platform of the Business Register Interconnection System, and
- development and establishment of the register eBusinesses in Croatia, which will comprise basic data about all businesses (enterprises, trades/crafts, independent professions, non-profit organisations, budgets and budget users), and it will be connected to the chamber systems as the owners of registers related to businesses.

7. Key areas and activities

- within the public procurement procedure, one of the important segments is legal protection, which is within the competence of the State Commission for the Control of Public Procurement Procedures (SCOM), which decides in appellate procedures on the legality of procedures, actions, failures to act and decisions issued in public procurement procedures, and on the legality of public procurement contracts and framework agreements concluded without conducted public procurement procedures. The SCOM therefore proposes that the following e-services be developed:
  - eAppeal (applicative solutions)
  - eFiling (data management and storage)
  - eTownHall (applicative solutions and hardware)
  - eArchives (applicative solutions and hardware)
  - two-way e-communication with parties in appellate procedure
  - database for the overview of case law (applicative solutions and hardware)
  and key activities:

  - project management and administration
  - definition of business processes
  - modernisation and upgrade of existing applications
  - modernisation and development of IT systems
  - development of eAppeal, eFiling and eArchives modules
  - integration and launch
  - development of instructions
  - training of civil servants

> By the end of 2017, an eBusiness platform will have been developed and implemented. By the end of 2017, the Business User Box will have been established, facilitating the communication between businesses and public administration, electronic procedures for the registration of establishment for companies and trades/crafts, and for the start of performance of service activities, as well as 6 new e-services will have been developed, and 8 key activities related to the control of public procurement procedures will have been implemented.

7.4 Opening up government and civil sector development

Wide ICT use creates new possibilities for opening up government towards its environment, enables citizen participation in problem solving and increases public administration transparency. The 'open government' approach includes approach to the public, transparency, responsibility, efficiency and cooperation with citizens. It is the approach which is becoming more and more important. A unique platform for communication with the interested public was prepared, which will also enable acceptance of citizens' proposals, and it will be continuously upgraded in line with new technological solutions and ideas.

7.4.1 Access to public administration information

All bodies in the Republic of Croatia are obliged to publish information of public character on its website. In practice, many bodies, especially smaller units, do not have the ability to fully comply with the obligation under the Law on the Right of Access to Information, because of the lack of a website or insufficient capacity to regularly update the website with documents in appropriate formats. This particularly applies to data for reuse (open data) and other public information. It is necessary to encourage all authorities to maintain, regulate and updated its website and to ensure monitoring of the implementation by the Commissioner for Information.

7. Key areas and activities

Also, the law requires all public authorities at national, regional and local level to facilitate public participation in policy-making and legislation. Today the consultation is carried out on the website of the individual bodies, in an uneven way and there are no single views of received complaints. It is necessary to promote and ensure the implementation of Internet consulting both individually, and through the portal and to ensure monitoring of the implementation by the Commissioner for Information. Government Office for Cooperation with NGOs, as the competent authority, ensures the functioning of the e-consultation for Public Administration. Portal can be accessed and via the platform of e-citizens. Similar solutions should be encouraged at local and regional level.

Moreover, a joint Content Management System of the Croatian Government will be further developed, with the aim to unify all the websites of public sector bodies which will ensure a standard approach to all public bodies' websites, and access to the same data in all of them. It will result in an easier access to information for citizens, businesses and public administration employees. Local and regional governments will also be encouraged in the use of established systems and portals.

7.4.2 Open data

Data represent a basis for innovative services and products which provide an incentive to economy in the sense of creating new jobs, development of new services and encourage the development of ICT. The open data portal – data.gov.hr, which functions as described in section 4, is proactively and continuously filled with new data sets, which are of higher and higher quality, and will be further developed according to needs, new EU and Croatian legislative provisions and new technological solutions.
Further development of the data release system is directed towards the release of linked data in formats intended for computers only, while data will be interconnected through publication by using appropriate solutions.
Open data infrastructure is also developed under the *Connecting Europe Facility*, and the Croatian open data portal will be connected to the pan-European Open Data Portal, which will enable a multilingual approach to data released by public authorities across the European Union.

Education on open and linked data (in the State School of Public Administration) is continuous, and more and more state administration bodies have been getting involved in it.

7.5   Industrialisation of national information infrastructure (A2A)

Industrialisation and interconnection of national information infrastructure by developing a central interoperability system (by ensuring authentic sources), and ensuring accessibility of a secure, maintained national information infrastructure in the 'government cloud' in the most cost-efficient way possible.

Business processes will be optimised through classification of e-services to horizontal and vertical, standardisation, digitalisation and intersectorial integration of simplified business processes on central, regional and local levels.

Horizontal business e-services such as management of electronic document and objects, workflow management, management and cost accounting, system of central procurement, human resources management will be computerized through the Shared Services Centre, in such a way that such tasks are standardised and ensure to the Croatian Government the possibility of performance supervision, change management and measurement of volume and quality of the work of public administration.

All bodies of the public administration are obligated to receive e-invoice. By the end of 2017 the Centre of shared services will launch a project of establishing a unified system for the electronic management of documents, objects, workflows, management and cost accounting and integrated system of central procurement. By the end of 2018, the Public register for the coordination of

7. Key areas and activities

projects for the development of the state information infrastructure will be upgraded. A Government Shared Service Centre will be established by the end of 2020 and it will provide 5 common services and 300 institutions will use the SSC services. Also, the information systems of the public administration will be adapted to the Open Data Portal. The system for coordination and communication between different levels of administration will be used by 10 institutions. A 3-module e-learning lifelong education program for IT professionals in the public administration will be implemented and 150 civil servants will take part in it until the end of 2019. The Registry of employees in the public sector will be upgraded by the end of 2020 with the system for human resources management and 80% of the public bodies will be in line with the new job classification. All information systems of public administration bodies will continuously be linked with each other and that will reduce the administrative burden and improve the quality of public administration services.

7.5.1 Informatisation of public authorities

The bodies of state administration for which it is established that the information and communications equipment fails to satisfy the conditions of the Decree on Organisational and Technical Standards for Connection to National Information Infrastructure will use the infrastructure, technical platforms and e-services available through the Shared Services Centre.

7.5.2 Government cloud and Shared Services Centre
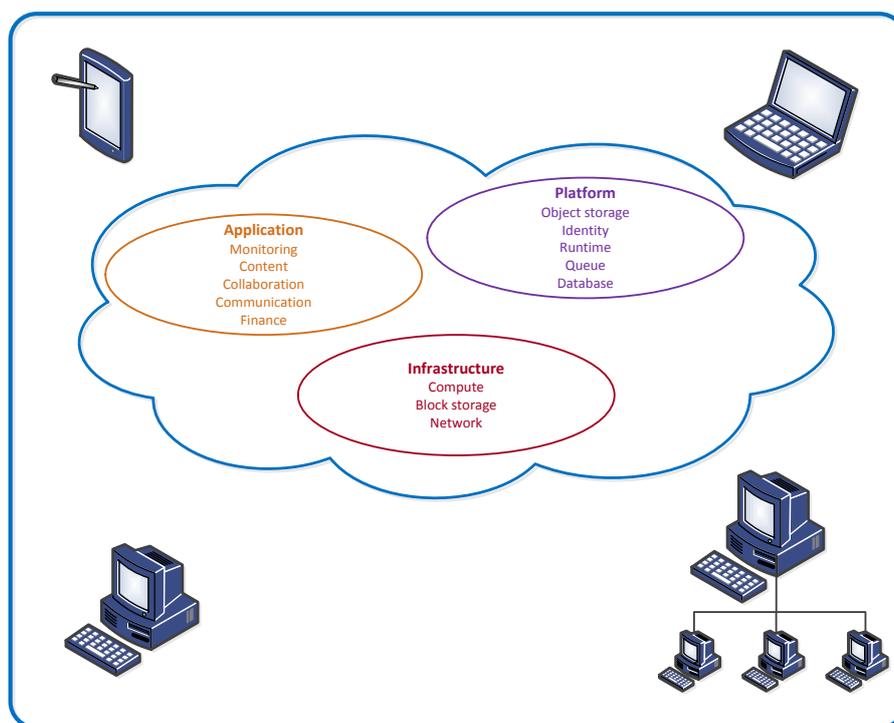
Figure 8 Government Cloud Strategy UK: Infrastructure, Platform and Applications can all reside in the cloud and be accessed from a range of devices and locations

The definition quoted most often is the one by the US National Institute of Standards and Technology (NIST), which states:
"Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or cloud provider interaction."

7. Key areas and activities

"Shared service" is a term describing the functionality of provision of services of joint business solutions to all users through e-services in the "cloud".

Section 4 describes the current state of national information infrastructure. The goal is to rationalise costs for the establishment and maintenance of national information infrastructure. It is for that reason that the decision was taken on the establishment of the government cloud through the Shared Services Centre, as a place where public sector bodies will share its information and communication equipment and e-services.

Demands on public sector information systems refer not only to the cost justification of IT equipment, but also to information security and business continuity. This refers primarily to the security of location in which the server equipment is placed, to ensuring power supply, temperature conditions and humidity at the permitted level, and maintenance of all that. Physical protection is an additional important element, i.e. ensuring a secure access of only those persons who need to and have a right to access the location. It is also necessary to have the necessary human resources to take care of the above.

Public registries, especially base registries which contain authentic data, the information from which constitute the foundations of public administration, and which serve as transactional databases with entries in which citizens' rights and obligations are exercised, require storage in locations which have the infrastructure and security described above, where IT and other equipment is maintained, and backup copies are made and stored in secure places. Many public sector bodies do not have the necessary infrastructure at disposal or the human resources necessary to take care of everything. A possible solution would be to establish a data centre for each public sector body and to employ additional people. This would, however, require high costs which are not justified in today's era of technological possibilities. The Croatian Government has adopted the decision to "transfer" into the cloud the central parts of the information systems of those public sector bodies which do not have the necessary data centres satisfying the criteria for ensuring business continuity and information security.

A data storage standard will be developed, wherein it will be defined precisely which data must be stored in the government cloud or own data centres, and which may be used in a public cloud.

The main criteria for determining the storage location will be whether data are personal, disclosed to the public and the level of risk of loss for government business operations.

The Republic of Croatia has chosen to establish a Shared Services Centres which will offer the following shared services:

ICT EQUIPMENT ACCOMMODATION SERVICES (FaaS)
- Services of accommodating the ICT equipment of public sector bodies in the SSC premises

INFRASTRUCTURAL SERVICES (IaaS)
- Service of virtual instances
- Service of dedicated servers
- Service of long-term data storage
- Service of secure data storage
- Service of stored data recovery (DR)

TECHNICAL SERVICES (PaaS)
- Service of using multi-tenant databases (RDBMS)
- Service of using a multi-tenant central application layer

7. Key areas and activities

- Service of using a Business Intelligence (BI) platform
- Service of using a directory
- Email service for authorities
- Service of using a platform for cooperation and communication among public sector employees
- Service of using an e-learning and testing platform
- Service of using a platform for the contact centre, and for reporting problems to ICT support and their solution
- Data management service (MDM)
- Service of using a process management platform

CENTRAL INTEROPERABILITY SYSTEM
- Metaregister
- Government Service Bus (GSB)
- Central portal for the access of civil servants to shared services
- Distributed database management system (DDBMS)
- System for the management of the content of the Central Government Portal (CMS)
- Open Data Portal

BUSINESS SERVICES (SaaS)
- Services of an integrated system for the management of documents, cases, workflows and archives
- Services of management and cost accounting and public procurement
- eInspection
- Human resources management

ICT CONSULTING SERVICES (CaaS)
- Business process modelling
- Business process optimisation
- Implementation of IT standards and technologies
- Definition of IT strategy and architecture
- Systems engineering support
- Project management support
- Support in the preparation of the technical specification for public procurement procedures in the ICT field

Shared resources will be available to a large number of users who will only have to take care of their own devices. This will enable dynamic scalability, operational speed and easy change of suppliers and services. The government cloud is a programme which will primarily ensure the use of horizontal services in the cloud, and which represents a shift in the way we procure and work with information and communications technology.

By adopting cloud computing, the public administration will be able to use and share ICT products. This means a shift in the culture of public sector bodies regarding the application of solutions offered by the market without the need to create unnecessary closed solutions. The government cloud will offer various IT components in the area of infrastructure, operational system and databases, e-services, especially horizontal, for the purpose of joint use of IT equipment (HW) and licenses, and savings through the joint use ICT.

7. Key areas and activities

In addition, through the Shared Services Centre, public sector bodies will be able to use applications and platforms which will cover common technical and operational functionalities, such as the common mailing system and the common system for access to file sharing.

It is important to stress that the Shared Services Centre will not be a body which develops solutions, platforms or applications autonomously, except in specific cases. The Shared Services Centre will offer the services of preparing tender documentation for the development of programme solutions, especially horizontal e-services, platforms and applications for public sector bodies. The development and adaptation of all the above will be offered by companies in the market.

The new business model is based on standardisation and consolidation of infrastructure, business processes and applications supporting them, and it will enable the Croatian Government, through the central state administration body competent for e-Croatia, to achieve the following via the Shared Services Centre:

- unified strategic management and coordination of national IT development, and harmonised development of public administration information systems – deliberate and comprehensive consideration of the needs of public administration bodies - users of electronic services, and the provision of a single service as the solution for identified client needs,
- consolidation of operations through the integration of the IT systems of different state bodies and use of a unique IT infrastructure, with the use of the existing information and communication infrastructure owned by the Republic of Croatia to the highest possible extent,
- industrialisation of national information infrastructure, i.e. bringing it to the stage of operational maturity,
- exchange of data from the public registers of all public sector bodies,
- transparency of the use of resources from the state budget allocated for ICT,
- use of the possibility of financing the development of electronically supported public administration through EU structural instruments with the ultimate goal to advance state and local government into the transparent, fast, efficient and citizen-friendlier government of the future,
- encouraging private initiative for enhancing national IT, and
- transparency and opening up of new business opportunities for the private sector, and provision of private sector services through national information infrastructure, and standardisation of market solutions.

Transparency and rationalisation of expenditure

Transparency and rationalisation of the use of resources from the state budget allocated for ICT will be achieved by consolidating computer infrastructure and other resources. Joint use of the same network, hardware and application resources will be enabled, which will ultimately rationalise the use of existing resources, reduce the need for investments in information systems, ensure equal security level in storage, processing and accessibility of data from public administration information systems, and will ultimately increase the accessibility of data to citizens. All services of the Shared Services Centre will also be available to local and regional self-government bodies for the performance of tasks related to their business operations and provision of public services.

Central interoperability system

The central interoperability system comprises the Metaregister (described in section 4) as the foundation for interconnecting public registers, and the Government Service Bus, a platform through which systems will be interconnected in a safe and standardised manner.

7. Key areas and activities

The project for constructing a Government Service Bus is in the preparation stage. The central interoperability system (which includes both hardware and software) should ensure:

- the possibility of interconnection and interoperability between the information systems of public sector bodies related to data and information necessary for e-service provision;
- Monitoring changes and developments in the national information infrastructure system, primarily changes in data capture in registers, and communication about it;
- Integrated e-services;
- Secure and reliable e-service provision;
- Monitoring data access and reporting it to the user (the user is entitled to know who accesses his/her data based on the Personal Data Protection Act)
- Savings;
- Shorter time required for developing e-services by using common standards.

The interoperability system will be developed further in accordance with new technological solutions, needs and possibilities.

Analytical system

Tools needed for large-scale analytical data processing will be offered through the Shared Services Centre as one of its services. This will ensure access to necessary information for the Croatian Government.

Considerations will be initiated on the introduction of the **Big Data** principle for the search and processing of large amounts of unstructured information/data. One of the prerequisites for the realization of "Big Data" is digitization of material in the possession of state administration bodies.

Who will have to use the services of the Shared Services Centre?

Services of the Shared Service Centre will have to be used by public sector bodies which do not have data centres resolved in a satisfactory manner by the existing regulations. For the public administration bodies whose data centres are at a satisfactory level according to the prescribed criteria and taking into consideration the principle of economy and efficiency, special transition programmes i.e. modes of integration with Shared Service Centre will be established. In addition, all public sector bodies will use the central interoperability system.

Minimum criteria for data centres which host key national information infrastructure, comprising public registers, and especially base registers, are prescribed by the provisions of the Decree on Information Security Measures (OG 46/2008).

All state administration bodies are obliged to prepare a plan to accommodate horizontal processes in Shared Services Centre. By the end of 2018 at least 40 state administration bodies will place its horizontal processes in the Shared Services Centre.

7.6   Human resource management in organisational units which support ICT in the public administration

Human resources have an important impact on the implementation of the Strategy, especially persons working in the ICT field. There will be systematic investments in the professional staff for the purpose of meeting the main requirement for successful implementation of ICT projects and ICT in general. A system of continuous staff training will be established, including training on economic and legal effects, and on project management, especially in the context of new technological solutions. First of all, the level of expertise of the existing staff will be increased. Mechanisms will be developed for the recruitment of new and retention of existing quality employees who already have the necessary qualifications and competencies in accordance with the actual needs for the management of complex ICT projects. This will ensure additional reliability in the use of national information infrastructure, and will ensure the level of quality of public administration services. Enhancement of the level of IT literacy of all participants in business processes, and long-term retention of the professional staff who provide support to the functioning of national information infrastructure will be ensured by the merit based rewards mechanism.

Ministry of Public Administration will develop methodology, curriculum and materials for the future e-Government training programme.

Human resource development in this area will be realised in synergy with the Public Administration Reform Strategy, in at least several directions:
- development of the competencies of ICT service users in the public sector;
- development of the competencies of participants in application development;
- development of the competencies of ICT professionals in the public sector, with an emphasis on education according to 'cloud' solutions, and
- intensified development of competencies in the system administration of the Shared Services Centre.

The problem of insufficient awareness among public administration employees about the role of digital inclusion (accessibility), eGovernment and sharing of public content in the enhancement of the quality of social capital and competitiveness of the Croatian economy will be resolved by organising conferences, seminars and trainings to raise their awareness of the importance of introducing digital technologies into the administration.

Apart from public administration employees, participation in the preparation of projects related to e-service development in Croatia will also be open for the employees of government agencies (FINA, CARNet, SRCE) which deal with ICT solutions for the public administration, and incorporations majority owned by the Croatian Government (APIS-IT d.o.o., AKD, Odašiljači i veze d.o.o.), in cooperation with private sector experts.

7.7   Further ICT project development on national level

Public Sector Staff Register (RegStaff) and Central Payroll (COP)
RegStaff and COP will be upgraded in the direction of adding a quality applicative solution for human resource reports and management, and for payroll, reporting and management of the salaries system.

7. Key areas and activities

HITRONet

The HITRONet network development in the period until 2020 defines guidelines of the technological development of infrastructure and services in such a way to ensure refurbishment of technological infrastructure, and extension of the capacities of the HITRONet infrastructural backbone which comprises communication transfer infrastructure (optical, metro Ethernet) for connecting county centres according to the HITRONet architectural topology, telecommunications infrastructure connecting the central locations of users in the City of Zagreb, and equipment for the establishment of ultimate HITRONet network services and for hosting the services of individual public sector bodies. In addition to technological refurbishment, it is necessary to increase the security level by installing appropriate proactive protection technologies to actively prevent hacking attacks. In addition to the active protection, it is necessary to install appropriate technologies which enable the detection of hidden viruses and other malware in the encrypted traffic.

Application of new technologies and manners of protection is a natural sequence of activities which are currently implemented by the ISSB on the HITRONet network, and which should continue to be implemented through the functionality of the future central operational location for information i.e. cyber security, a centre which would ensure a high level of information i.e. cyber security by continuously controlling computer threats and vulnerability of the information systems of state bodies.

8. Effects of the implementation of the Strategy

Implementation of the Strategy will primarily affect the life of citizens. Interaction with the public administration is not the purpose of the existence of citizens and businesses, so that it should be reduced to the necessary minimum, and their needs should be satisfied within the set time limit. Public administration informatisation will affect services by making them precise, legal, timely and transparent, and provided through the channel which is most convenient for citizens and businesses. By using e-services, the entire Croatian population is getting used to using new technologies and increasing their value in the labour market.

Training of public administration employees in the field of ICT and the creation of one-stop shops in the real world, where instructions will be given to citizens on how to use systems such as eCitizens, will additionally promote further development and implementation of innovative solutions in public administration.

Citizens' satisfaction with the use of the eCitizens platform is already visible, but in time they will demand more and more aggregate services.

Businesses indicate the inefficiency of public administration as the biggest problem. Informatisation will increase the level of public administration efficiency and transparency. The price of the public administration is superposed on the price of every product and service in Croatia, so that higher efficiency and rationalisation of the public administration will lead to a faster ROI (Return on Investment) and to lower product prices, which will increase the competitiveness of the Croatian economy.

In addition, intense development of digital economy will be enabled within the Croatian economy, especially in the segment of SMEs. This will enable more comprehensive and higher quality support and the acceleration of business flows in that segment of economy. At the same time, Croatia will position itself higher in DESI as a result.

The Strategy will have a positive impact on environmental protection, since the integration of information systems on common ICT capacities will reduce energy consumption necessary for the use of computers and air conditioning. By using an interconnected information system, the public administration will perform more easily, will be less burdened by repetitive tasks, and will be able to dedicate that extra time to other types of tasks instead, primarily legal regulation of the system, regulation of business processes and arrangement of data in public registers, that is, to all those things which cannot be done by machines.

Due to the use of common solutions, the Croatian Government will be able to monitor the performance of the public administration, identify problems in the processing of requests made by citizens and businesses at the level of individual organisational units, even individual employees, and will be able to manage the public administration system on the basis of facts.

The e-Croatia 2020 Strategy also touches on the Strategy for Broadband Development in the Republic of Croatia 2016-2020, which provides an active incentive to creating the conditions for accelerating the development of fast broadband Internet access with connection speeds over 30Mbit/s, and puts emphasis on the need to ensure the availability of broadband access with speeds over 100 Mbit/s, in order for the broadband infrastructure to follow the development of services and applications which require that speed for smooth functioning, which includes the symmetry of connection speeds. The e-Croatian 2020 Strategy is focused on public institutions and services, and is therefore obligated to ensure adequate connection speeds for a larger number of users, who use the services of different public institutions. It is therefore necessary to develop a network which will enable an ultra-fast access to it through public institutions (preferably 100 Mbit and over), first of all hospitals, schools,

8. Effects of the implementation of the Strategy

higher education institutions, and central government and self-government units. This will ensure synergy in the development of the infrastructural part of the system, which is the basis and precondition for the development of e-services.

The entire society will profit from the implementation of this Strategy.

9. Management, supervision and evaluation system

9.1 Strategy implementation management system

Implementation of the Strategy is monitored by the body competent for e-Croatia affairs, the head of which coordinates strategic thinking and introduction of e-services in public administration bodies. He cooperates closely with the unit responsible for strategy and public policy implementation. Action Plan for the Implementation of the eCroatia 2020 Strategy is prepared for monitoring the implementation of the Strategy.

In order to eliminate possible risks and for the timely funding of reform measures from the European Structural and Investment Funds (Operational Programme Competitiveness and Cohesion) managing the implementation of the Strategy has been allocated as a separate component of this document with defined measures for the establishment and implementation of mechanisms for coordination, monitoring and evaluation.

Croatian Government as the holder of executive power, in accordance with the Constitution and the law determines, directs and coordinates the implementation of policies and programs and to this end proposes and delivers strategies and acts of giving directions, take other measures necessary for the regulation of relations in the field of their competence and adopt the Strategy with an Action Plan.

In order to ensure effective management structures for implementation of the Strategy, Ministry of Public Administration as responsible for implementing the Strategy for Development of Public Administration for the period from 2015 to 2020, added responsibility for the effective and efficient implementation of the Strategy for e-Croatia 2020th.

9.2 Strategy implementation supervision system

The Strategy will be harmonised with the development priorities of the Republic of Croatia on a two-year basis, as needed. The central body competent for e-Croatia affairs will form an intersectorial group at the ministerial level, and conduct consultations with the interested public through an online questionnaire. In addition to the relevant ministries of the utmost importance is the involvement of professional bodies dealing with the protection of personal data, the right of access to information, intellectual property, national and information security, as well as representatives of the academic and professional community. The intersectorial group will prepare an analysis of the harmonisation of the Strategy with Croatia's development objectives, new technological solutions and citizens' expectations, and if necessary harmonise the Strategy accordingly. The harmonised Strategy will be accepted by the National Information Infrastructure Council and proposed to the Croatian Government to be adopted jointly with the Action Plan.

The Action Plan for the Implementation of the eCroatia 2020 Strategy will contain concrete activities by 2020, activity carriers and co-carriers, and financial resources with their source.

The accepted Action Plan with funding priorities by each fund is delivered to the Ministry of Regional Development and EU Funds i.e. to the Ministry of Labour and Pension System for implementation.

The implementation of activities from the Action Plan for the Implementation of the eCroatia 2020 Strategy is supervised by Ministry of Public Administration and the National Information Infrastructure Council, and Ministry of Public Administration prepares an implementation report once a year for the Croatian Government.

9.3   Strategy implementation evaluation system

The central body competent for e-Croatia will conduct a user satisfaction survey (for citizens, businesses and public administration employees) concerning electronic services through a questionnaire. The questionnaire will explore citizens' needs and wishes for further e-service development. The number of e-service users will be monitored through it as well.

The central body competent for e-Croatia will introduce periodical reviews of indicators, annually and as needed, depending on the indicators described.   The quality of eGovernment will be monitored by the National Information Infrastructure Council.

10. Financing

Table 6 Representation of the highest interest of the citizens for the introduction of electronic services

	Areas	eHealth	eLand Management	eCulture	eTourism	eJustice	eInclusion, Homeland War veterans	eSchools
1	Finance and taxes		*		*	*		
2	Health	*					*	
3	Legal state and security		*		*	*		
4	Education			*				*
5	Labour	*			*	*		*
6	Consumer rights	*			*	*		
7	Traffic and vehicles	*						
8	Business		*			*		
9	Family and life	*	*	*			*	*
10	Active citizenship and leisure time	*		*	*			
11	Business e-services		*		*	*		
12	Living and environment		*			*		
13	Homeland War veterans	*					*	
14	Tourism	*	*	*	*			
15	Culture			*	*			*

Research and the conducted public online questionnaire on satisfaction with electronic services and information indicate development priorities as seen by citizens. The analysis of data collected within the public administration system has produced an overview of the existing situation and indicated the direction of further development. Consultations have been held with interested partners from the business field on the development of e-services and reduction of administrative burden as well as on fostering growth in economic activity.

For the informatisation of the entire public administration, following the objectives of the Strategy, which are based on the priority axes of the Operational Programme as the key driver of the development of a larger number of public administration e-services, it is first necessary to launch the Shared Services Centre in order to ensure a system for the storage of information systems and sharing of technical services, and through the SSC to procure programming solutions and platforms for the same type of tasks in the entire public administration, such as:

- eBusiness
- document management system, objects management and workflow management
- system of common horizontal processes
- public procurement,
- ePension,
- human resources management,
- communication among civil servants according to administrative areas (CIRCABC),
- eArchives

10. Financing

- eInspections
- FMC
- Strategic planning, management and performance measurement, and
- common dynamic forms system.

This will significantly accelerate safe and reliable intersectorial and interinstitutional cooperation, and create a reliable platform for the implementation of intersectorial projects.

A key criterion in priority selection is to ensure an optimal investment result, which will be achieved through the development of a system, platform or service to be financed by public resources, as well as the incentive which project implementation will provide for the development, progress and quality of the service of an individual area of funding. Priority was also given to the areas of funding which cover or influence (in social, economic, business etc. terms) the greatest scope of target population.

Investments in the healthcare system can be recognized as a good example of investment, which prepares and consolidates it for the challenges posed by population ageing, development and introduction of new technologies, prices and amounts of medication and other factors of the expected future burden on the healthcare system.

Introduction of an integrated transparent system for the improvement of physical planning procedures for land management is one of the basic systems for the enhancement of the general quality and standards of the provision of public administration services. Collection, recording, updating and distribution of land and geospatial data are the basis for all follow-up projects, analyses and procedures concerning their management and upgrades for citizens, businesses and state administration bodies. A reliable system of regulated property relationships is a basic prerequisite for the acceleration of economic activity in business.

Development of an eTourist information system will provide an additional incentive to one of the most significant branches of economy in Croatia, and development and introduction of control mechanisms will help face challenges posed for that branch of economy.

Apart from their primary task of preservation, enrichment and promotion of cultural heritage, events and projects, services in culture also supplement and enrich the tourist supply.

Informatisation and e-services in the field of finance and taxes, primarily the informatisation of regulated and simplified business processes, will be funded under the OPEHR. Exact projects will be indicated in the Action Plan for the Implementation of the eCroatia 2020 Strategy.

Projects in the field of social welfare will be informatised using resources from the ensured World Bank credit, and services in economy and rural development will be funded through the Rural Development Programme 2014 – 2020, while other areas (e.g. maritime affairs) will develop their information systems using resources from the Croatian state budget.

11.   Inclusion of partners

Activities for the development of the Strategy were initiated in September 2014 in internal meetings of the e-Croatia Directorate of the Ministry of Public Administration, where the basic structure i.e. the backbone and milestones of the future Strategy were discussed.

The first formal steps were taken on 2 October 2014, when the Ministry of Public Administration sent an official letter to line bodies of state administration informing them about the beginning of the development of the Strategy, and requesting nomination of the members of the Working Group for its development. The Working Group consists of representatives from ministries, the Office of the National Security Council, state administration offices in counties, the Faculty of Organisation and Informatics and APIS-IT d.o.o.

As early as 13 October 2014 the first meeting of nominated line representatives took place at the Ministry of Public Administration, where the goal and purpose of the development of the Strategy were presented, and feedback was requested from the representatives present in the form of ICT forms to be filled with information on the existing and required state of ICT, objectives and the analysis of the state in individual departments and associated institutions.

In order to make a comprehensive snapshot of public sector ICT, and to establish a starting point and ICT development needs in 2020 for all stakeholders, taking into account specific national sectorial strategies, the requested information covered by the inquiry were divided into five levels:

- legal level
  - existence and harmonisation of legal regulations related to a given area of e-services, and any shortcomings perceived
- organisational and process level
  - processes consisting of several services through which different organisations (or their organisational units) cooperate in order to achieve set objectives and mutual benefits related to the services they provide
- organisational and human resource level
  - systematisation, qualifications system and professional staff education with a special emphasis on human resource sufficiency
- service level
  - electronic, classic and aggregate services of the state administration, provision of services regardless of user type
- infrastructural level
  - infrastructure, equipment and technical issues related to sectorial informatisation, equipment sufficiency, quality of data centres

Based on the collected and processed information from line bodies, an overview of conducted activities was given at the second meeting, held on 16 December 2014, when the first draft of the Strategy was also presented. Line representatives were given the task to supplement, each for his/her area, the section of the Strategy which refers to specific strategic ICT objectives, area of operations and indicators, so as to cover all interest areas of line bodies by timely inclusion of all proposals on future e-services and ICT solutions.

At the said meeting the web link https://e-upitnik.gov.hr/index.php/133173/lang-hr was presented, which contains the Questionnaire on Satisfaction with e-Services and Information, designed by the Ministry of Public Administration to directly include interested citizens and thus receive as many and as precise answers as possible on which e-services Internet users expect from the public administration, their opinion on eGovernment in Croatia, and to identify their behaviour and needs related to the resolution of electronically submitted requests towards the public administration. The

11. Inclusion of partners

area of inquiry encompassed the type and quality of information and services which users search on the websites of public administration bodies, identification of issues which users have resolved online, estimate of service quality, and identification of obstacles for the use of an e-service. The Questionnaire on Satisfaction with Electronic Services and Information was published on the Internet on 17 December 2014, and remained active until 1 March 2015, in which period over 5,000 persons filled it out. On 12 February 2015, a presentation of a draft Strategy was delivered to all IT coordinators in state administration offices, with a request for comments and proposals for the next stage of its development.

The e-biz2015 conference (30/03 – 01/04/2015) covered the topics of legislative framework, EU and regional practices, and, naturally, Croatian practices. A part of the conference was dedicated to eGovernment solutions and experiences. The Ministry of Public Administration presented to the conference participants the projects underway, among which the draft Strategy was presented, along with an overview of current and coming activities related to the Strategy.

On 1 April 2015, a workshop was delivered in the premises of the Croatian Employers' Association for its members, in which the Ministry of Public Administration presented the draft Strategy, upon which an open discussion ensued, and further cooperation was agreed upon. Another discussion of the Strategy took place at the CAA on 28 March 2017, and comments of the CAA were received and processed.

Apart from line bodies of state and public administration, participants in the development of the Strategy include the representatives of local and regional self-government, business community, CEA and wider community, who presented their comments and proposals during organised consultations, round tables and public comments. Generally, it may be said that the Strategy is the result of a joint effort by all segments of the Croatian society.

The Ministry of Public Administration finished a proposal of the e-Croatia Strategy 2020 in mid-March 2015. Participants in its development included the representatives of all central state administration bodies, the Faculty of Organisation and Informatics and company APIS-IT d.o.o.

On 12 February 2015, while still in development, the proposal of the e-Croatia 2020 Strategy was presented to IT coordinators in state administration offices. In early March 2015, the Strategy was discussed with the representatives of the central bodies which participated in its preparation.

Consequently, the Proposal of the e-Croatia 2020 Strategy was presented at the e-Biz2015 conference on 1 April 2015. On the same day a workshop on the topic of e-Croatia 2020 Strategy was held for the members of the Croatian Employers' Association (CEA), where further cooperation was agreed upon and two more workshops were scheduled for 19 May and 21 May 2015.

On 15 April 2015, the e-Croatia 2020 Strategy was published on the website of the Ministry of Public Administration for the purpose of consultation with the interested public. Comments of the public as well as any other comments received by the Ministry will be processed publically as a part of the public consultation.

On 17 April 2015, the Ministry organised a presentation of the e-Croatia 2020 Strategy and invited the representatives of the Faculty of Electrical Engineering and Computing, the Faculty of Economy in Zagreb, the Faculty of Electrical Engineering, Mechanical Engineering and Shipbuilding in Split, the Faculty of Law, the Faculty of Science, the Faculty of Organisation and Informatics, the Algebra college, and unit of the Working Group within the Ministry which is in charge of the open-source code. The representatives present were delivered the presentation of the e-Croatia 2020 Strategy, and gave quality comments. It was agreed that all comments would also be delivered in writing.

11. Inclusion of partners

On 27 April 2015, a presentation of the Strategy was delivered for IT companies which are members of the Croatian Chamber of Economy (HGK).

On Tuesday, 19 May 2015, a meeting with a representative of the CEA took place at the Ministry of Public Administration, where general remarks concerning chapters 1 to 4 were made and adopted in line with the previously agreed work plan. At the meeting held on Thursday, 21 May 2015, remarks concerning chapters 5 to 7 were made and adopted. It was agreed that the CEA would deliver comments in writing by Friday, 22 May 2015, by the end of the day at the latest.

The Ministry of Public Administration sent the Draft Strategy and the Action Plan to the European Commission for prior consent, and in early 2016 received the confirmation from the DG for Regional and Urban Policy that the eCroatia 2020 Strategy was accepted, and that all preconditions were met for initiating a call for tender worth 105m Euros in total, intended for the development of e-services for citizens and businesses under the Operational Programme Competitiveness and Cohesion, Priority Axis 2 - Use of Information and Communication Technologies, Specific Objective 2c1 - Increase of the use of ICT in communication between the citizens and public administration through establishment of ICT coordination structure and software solutions.

At the session of the National Information Infrastructure Council in July 2016, a presentation of the Draft eCroatia 2020 Strategy and the accompanying Action Plan for the Implementation of the eCroatia 2020 Strategy was delivered, and both documents were subsequently accepted.

Annex 1

Definitions and abbreviations

Definitions used in this Strategy are as follows:

A *public service* is the outcome of a business process within one or several state bodies or public services, which resolves a user issue which falls under legislative competence and responsibility of the public sector.

An *electronic public service* is a service provided to users by public authorities via the computer communications network (more advanced e-services include the authentication process).

Interoperability is the ability of disparate and diverse organisations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations, through the business processes they support, by means of the exchange of data between their respective ICT systems.

Networked government represents the realisation of the public administration interoperability system on legal, organisational, semantic and technical level, and is a prerequisite for the establishment of a user oriented government.

A *user oriented government* represents a unified public administration system, the goal of which is to support the user in a simple, transparent and fast realisation of the interests, rights and obligations defined by legislation, and participation in social decision making, along with a continuous adjustment of services and functioning to the user's needs, life situations, affiliation, age, location and other temporary or permanent circumstances.

Authentic Sources	- information which is authentic and reliable, and is defined by law as such, or which arises from the purpose of the establishment of a public register as defined by law
Authentication	- a formalised process of verifying the credential of an electronic public service user which results in identity confirmation/denial
A2A	- Administration to Administration
A2B	- Administration to Bussiness
A2C	- Administration to Citizens
Big Data	- a term used to describe the exponential growth and availability of structured and unstructured data, the analysis of which can lead to greater operability, reduction of costs and risks
Shared Services Centre (SSC)	- a single strategic location for the management and coordination of national IT development; a place which will enable public sector bodies to use applications which will cover common technical and business functionalities, such as the common mailing system and the common system for access to document sharing
Cloud	- a model which enables online access to shared computer resources on demand
Connecting Europe	- an instrument for supporting trans-European networks, the

Facility	availability of broadband Internet and access to digital services infrastructure as the basis of a modern single market, which enables interoperability, communication, interconnection, exchange of services and business growth.
Central payroll (COP)	- a payroll system for all public sector institutions which follows unique rules, enabling quality reporting on salaries paid on the level of the entire system, groups of institutions, institutions and individual employees with complete analytics
Government cloud	- a programme which ensures the use of a series of services in the cloud, and which represents a shift in the way we procure and work with information and communications technology
eCitizens	- a part of the national information system which comprises the Central Government Portal, the National Identification and Authentication System (NIAS) and the Personal User Box system.
Electronic Identity - eID	- a unique set of identification data on a specific subject (person, public sector body, computer system) kept in electronic form, on the basis of which it is possible to establish unequivocally the identity of the subject to which/whom the data pertain
Electronic Safe	- security of content, data control, and prevention of the leakage of data exchanged via the Internet, including web surfing
Electronic Documents - eDocuments	- any content in the electronic media (except for computer programmes or system files intended for use in electronic or written form
Electronic signature	- a set of data in electronic form, which are associated or logically connected with other data in electronic form, and which serve to identify the signee and the authenticity of the signed electronic document
ePass	- a service which requires a user name for identification and a password for authentication, and which enables access to online public services within the eCitizens system
eToken	- a service which requires the number of an mToken application on a smartphone for identification, and a password generated by the application on the smartphone for authentication, and which enables access to online public services within the eCitizens system
Government	- every use of information and communications technologies in the public administration
e-service (electronic service)	- a public service provided online by public sector bodies to citizens and other users
HITRONet	- computer communication network of state administration bodies which represents the Internet backbone of the administration
ICT	- Information and Communications Technology
Internet of Things	- a concept which describes the incorporation of microelectronic circuits and programming support into devices which are not computers by nature, in such a way to ensure the possibility of interconnection and communication with other devices.

Interoperability	-	the ability of different systems to function in a coordinated manner in order to achieve common and agreed objectives
Single Sign On - SSO	-	the process of authentication which enables the user to present his/her accreditation data only once to be able to access all permitted resources
myID	-	a NIAS service which enables the user to adjust the settings of his/her account related to the unique electronic identity in NIAS
mToken	-	a credential with security level 3; it enables the use of e-services which require a level 3 credential for access
Subsidiarity and proportionality principle	-	the goal of the subsidiarity principle is to ensure efficient decision making at the level closest to citizens, whereas the proportionality principle requires that measures undertaken by institutions do not surpass the boundaries of what is appropriate and necessary to accomplish goals
National Identification and Authentication System - NIAS	-	a comprehensive information and technological solution for the identification and authentication of users on the national level
'only once' principle	-	the citizen submits data only once, after that they are transferred
OPHRM	-	Operational Programme Human Resources Management
PUB (Personal User Box)	-	it enables every user to receive personal official messages (emails) related to public services, procedures (i.e. their course) and personal status, as well as to view, manage and store them
Open data	-	data created by public authorities which are appropriate for the reuse of information; they are published proactively on the websites of public authorities or portals established for that purpose
RegStaff	-	public sector staff register
SWOT analysis of public administration ICT	-	analysis of strengths, weaknesses, opportunities and threats of public administration ICT
Virtual one-stop shop	-	a place in which access to government electronic information and services is ensured

Annex 2

Structure of the Questionnaire on Satisfaction with Electronic Services and Information

I. Electronic services and information

How important is online access to public services for you?
(for each of the services below choose one of the following answers: Unimportant; Pretty unimportant; I don't know; Pretty important; Important)
- Access to vacancies in the public sector and Croatian Employment Service
- Access to information and advice on consumer rights
- Access to personal data on health care services and health
- Making appointments for health care services
- Electronic communication with the education system
- Access to spatial and environmental data
- Obtaining an e-construction permit
- Access to library catalogues
- Access to open data, information, reports and statistical data of public institutions
- Online voting
- Participation in public discussions on public policy definition
- Access to information on cultural heritage and cultural institutions
- Access to information for tourists
- Access to judicial registers and services
- Access to information on rights from the social welfare system
- Issues regarding Croatian war veterans
- Services for the inclusion of especially vulnerable groups

What sort of information did you search on the websites of public authorities in the past 12 months?
(possible to choose more than one option)
- Information regarding employment
- Issues regarding health
- Learning, education
- Health and pension insurance, welfare benefit, child benefit (or one-time financial support for newborn gear)
- Personal documents (passport, civil status, birth certificate, etc.)
- Local taxes and contributions (e.g. local surtax)
- Consumer rights, other legal information
- Vehicles (e.g. driver's license, registration)
- Legislative drafts and other legal regulations, local self-government decisions
- Subsidies, EU funds, EU projects
- Statistical data, reports
- Business activities (e.g. establishment of a company/trade, taxes, VAT)
- Construction issues and physical planning
- Public procurement
- Information on culture and tourism
- Banking
- Other

Which of the following statements describes most accurately your experience of interaction with the public administration for the purpose of handling an administrative request via their websites or online services in the past 12 months?
(possible to choose only one option)
- I realized that it is impossible to handle that administrative request online
- The request submission and processing procedure is complicated, instructions were unclear
- I did not receive an answer or a response from the competent body
- Handling of the request took longer than I had expected
- There were some technical problems
- The form to fill out was too difficult, and instructions were either non-existent or unclear
- I was satisfied with the way the competent body handled my request
- Other

Have you noticed any changes in the websites and/or online services of public administration bodies lately?
(possible to choose only one option)
- Yes
- No
- I don't know

How do you rate recent changes in the websites and/or online services of public administration bodies?
possible to choose only one option and only if the answer to the previous question is "Yes")
- Positively
- They do not affect the way I interact with the public administration
- Negatively
- I don't know

If in the future you wish to use a service of a public body, would you like to use it online?
(possible to choose only one option)
- Definitely yes
- Probably yes
- I don't know
- Probably not
- Definitely not

What limits you in the use of online services?
(possible to choose more than one option)
- In the end, I still have to go to the competent office in person (e.g. to sign or pick up a document)
- Uncertainty whether my case will ultimately be resolved properly
- A small number of available services
- Lack of information on how to proceed
- Lack of services I am interested in
- I prefer direct and personal contact to a civil servant
- It is difficult for me to fill out all the forms on my own
- I am afraid to use the Internet for official matters
- I have tried, but ended up with only bad experiences
- I don't think security is on the necessary level
- It is not accessible to me due to my disability

- I don't see any obstacles
- I don't know, it's hard to say
- Other

List three most important public services for you which should be available online.
(possible to choose up to three options)
- Active citizenship and leisure time
- War veterans
- Finance and taxes
- Culture
- Family and lifestyle
- Education
- Business
- Consumer rights
- Rule of law and security
- Transport and vehicles
- Labour
- Housing and environment
- Tourism
- Health
- Services for businesses
- Other

List three most important types of public sector information for you which should be available online.
(possible to choose up to three options)
- Active citizenship and leisure time
- War veterans
- Finance and taxes
- Culture
- Family and lifestyle
- Education
- Business
- Consumer rights
- Rule of law and security
- Transport and vehicles
- Labour
- Housing and environment
- Tourism
- Health
- Services for businesses
- Other

<div align="center">

II Statistical data on respondents

</div>

Gender
(possible to choose only one option)
- Female
- Male

Age

(possible to choose only one option)
- under 18
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75 and over

Education level

(possible to choose only one option)
- unfinished primary education
- Primary education
- Unfinished secondary education
- Secondary education
- Undergraduate/graduate degree
- Postgraduate degree

IT literacy level

(possible to choose only one option)
- Beginner
- Average
- Advanced

Occupation

(possible to choose only one option)
- Executive/manager
- Field of humanities
- Field of natural and technical sciences
- Office/counter clerk
- Service/commercial occupation
- Worker in agriculture, hunting and breeding, forestry and fisheries
- Trade/craft and individual production
- Machine/vehicle operator and product assembler
- Simple occupation
- Military/police
- Student
- Pensioner
- Unemployed

Monthly net income of respondents

(possible to choose only one option)
- under HRK 3,500
- from HRK 3,501 to 6,500
- from HRK 6,501 to 10,000
- over HRK 10,001

Possibility of Internet access

(possible to choose only one option)

- Yes
- No, for financial reasons
- No, for technical reasons
- I don't want it

The most common way to access the Internet
(possible to choose only one option and only if the answer to the previous question is "Yes")
- Dial-up
- Mobile phone
- xDSL
- Cable Internet

Place of residence
(possible to choose only one option)
- Bjelovar and Bilogora County
- Brod and Posavina County
- Dubrovnik and Neretva County
- Istria County
- Karlovac County
- Koprivnica and Križevci County
- Krapina and Zagorje County
- Lika and Senj County
- Međimurje County
- Osijek and Baranja County
- Požega and Slavonia County
- Primorje and Gorski Kotar County
- Sisak and Moslavina County
- Split and Dalmatia County
- Šibenik and Knin County
- Varaždin County
- Virovitica and Podravina County
- Vukovar and Srijem County
- Zadar County
- Zagreb County
- City of Zagreb

Place of residence – according to size
(possible to choose only one option)
- under 500 inhabitants
- from 501 to 10,000 inhabitants
- from 10,001 to 35,000 inhabitantsover 35,001 inhabitants

Annex 3

The results of the Questionnaire

Importance of access to public services

Services for the inclusion of especially vulnerable groups	
Issues regarding Croatian war veterans	
Access to information on rights from the social welfare…	
Access to judicial registers and services	
Access to information for tourists	
Access to information on cultural heritage and cultural…	
Participation in public discussions on public policy definition	
Online voting	
Access to open data, information, reports and statistical…	
Access to library catalogues	
Obtaining an e-construction permit	
Access to spatial and environmental data	
Electronic communication with the education system	
Making appointments for health care services	
Access to personal data on health care services and health	
Access to information and advice on consumer rights	
Access to vacancies in the public sector and Croatian…	

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

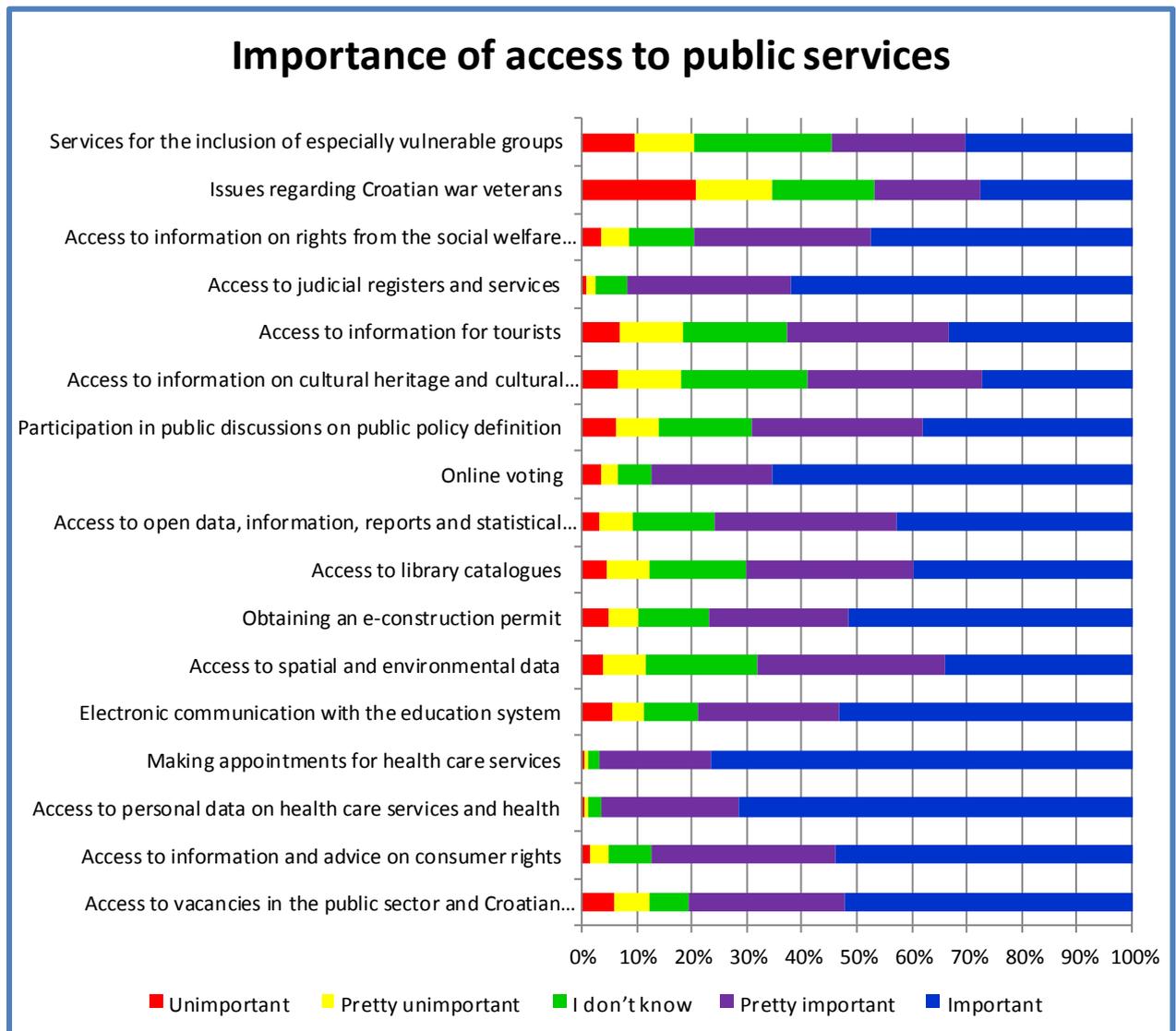■ Unimportant ■ Pretty unimportant ■ I don't know ■ Pretty important ■ Important

Chart 1 Importance of access to public services

*The question asked in the **Questionnaire on Satisfaction with e-Services and Information** was as follows:*

1. *How important is online access to public services for you, with the following answers offered:*
   - *Unimportant, pretty unimportant, I don't know, pretty important, important*
   - ***3,268** persons answered, they could all choose more than one answer, so that the sum of answers does not correspond to the number of persons who answered the question*
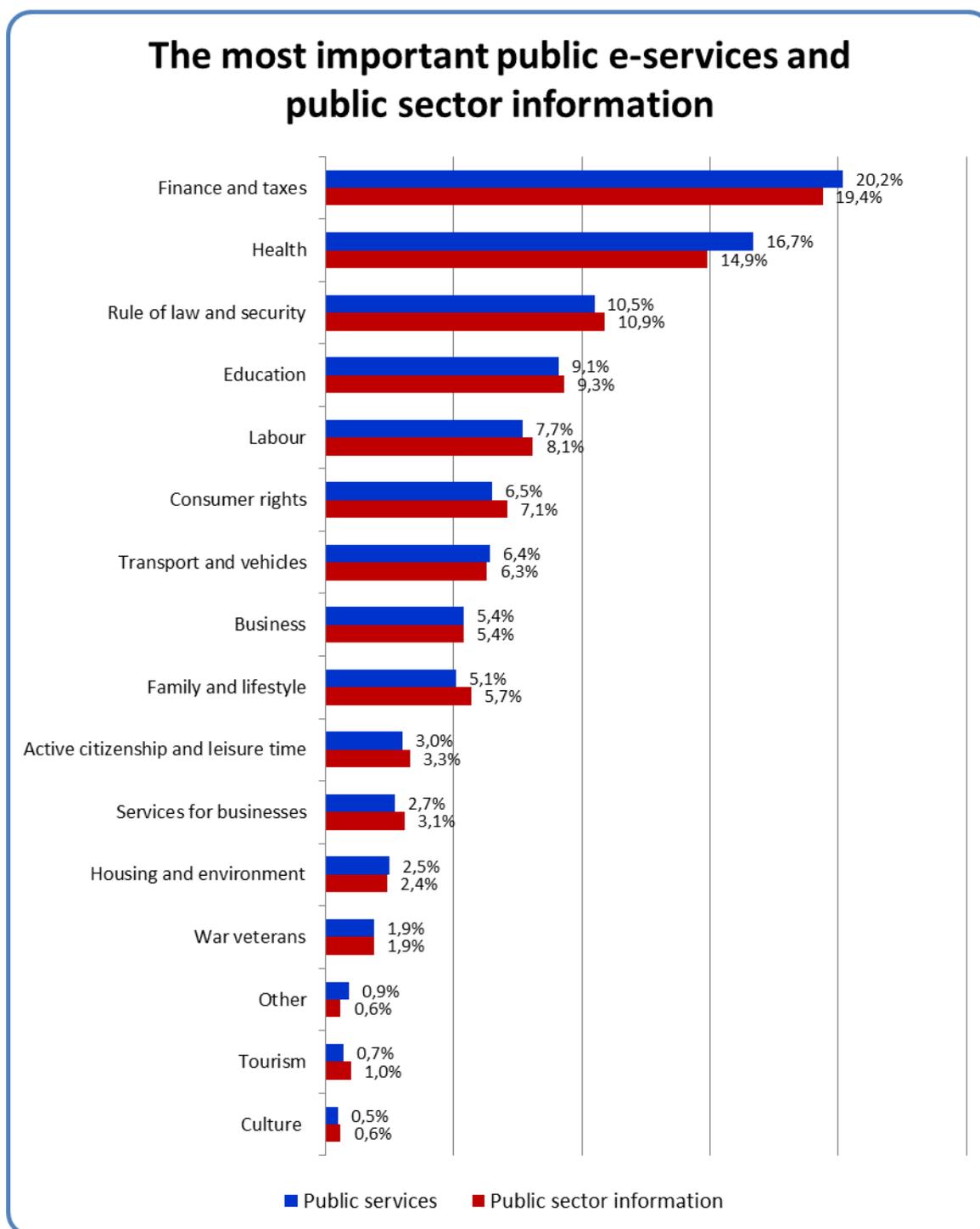
The most important public e-services and public sector information

	Public services	Public sector information
Finance and taxes	20,2%	19,4%
Health	16,7%	14,9%
Rule of law and security	10,5%	10,9%
Education	9,1%	9,3%
Labour	7,7%	8,1%
Consumer rights	6,5%	7,1%
Transport and vehicles	6,4%	6,3%
Business	5,4%	5,4%
Family and lifestyle	5,1%	5,7%
Active citizenship and leisure time	3,0%	3,3%
Services for businesses	2,7%	3,1%
Housing and environment	2,5%	2,4%
War veterans	1,9%	1,9%
Other	0,9%	0,6%
Tourism	0,7%	1,0%
Culture	0,5%	0,6%

■ Public services   ■ Public sector information

Chart 2 The most important public e-services and public sector information

*The question asked in the **Questionnaire on Satisfaction with e-Services and Information** was as follows:*

1. *List three most important public services for you which should be available online.*
   - ***3,268** persons answered*
2. *List three most important types of public sector information for you which should be available online.*
   - ***3,268** persons answered*

The most important public sector services searched online

under 18 ▪ **18-24** ▪ **25-34** ▪ **35-44** ▪ **45-54** ▪ **55-64** ▪ **65-74** ▪ **75 and over**
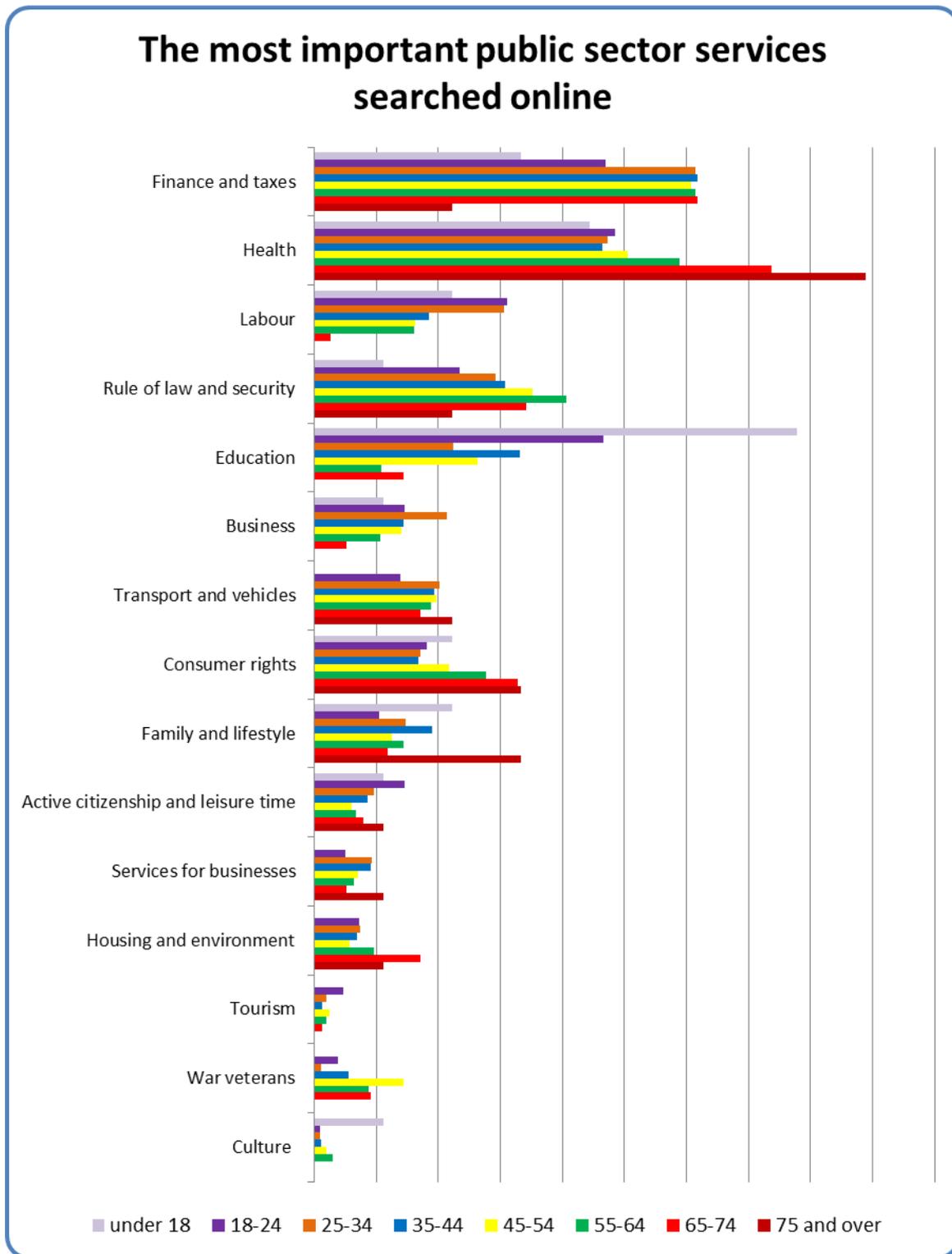
Chart 3 The most important public sector services searched online

*The question asked in the **Questionnaire on Satisfaction with e-Services and Information** was as follows:*

1. *List three most important public services for you which should be available through the Internet*
   - ***3,268** persons answered*
   - *The age groups were: under 18, 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 to 74, and 75 and over*
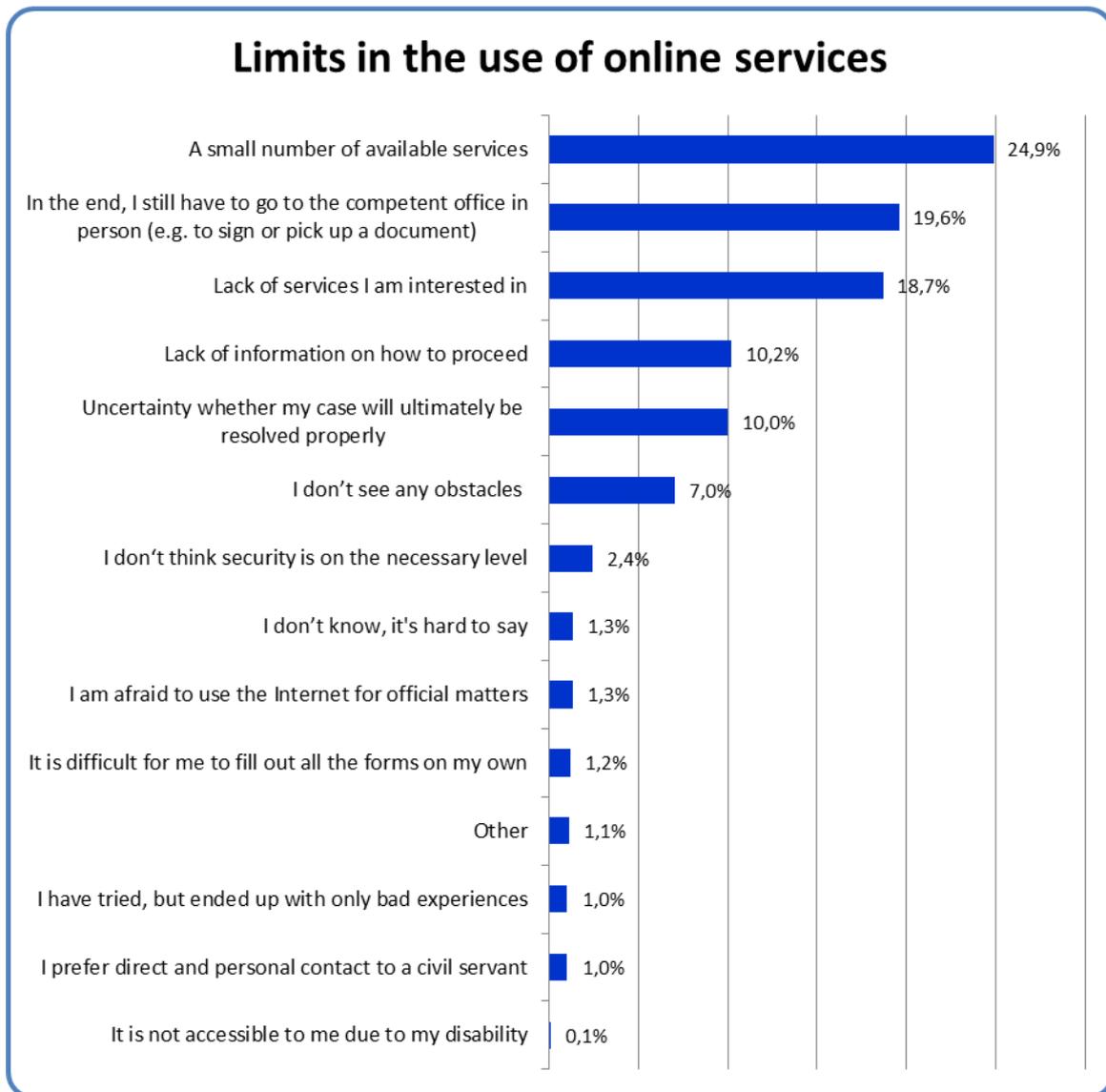
Chart 4 Limits in the use of online services

The question asked in the **Questionnaire on Satisfaction with e-Services and Information** *was as follows:*

- *What sort of information did you search on the websites of public authorities in the past 12 months*
  - *3,268 persons answered*

Experience of respondents with online interaction with the public administration

I was satisfied with the way the competent body handled my request — 36,8%

I realized that it is impossible to handle that administrative request online — 21,0%

The request submission and processing procedure is complicated, instructions were unclear — 10,6%

Handling of the request took longer than I had expected — 10,3%

I did not receive an answer or a response from the competent body — 7,9%

Other — 7,3%

The form to fill out was too difficult, and instructions were either non-existent or unclear — 3,3%

There were some technical problems — 2,8%

Chart 5 Experience of respondents with online interaction with the public administration

*The question asked in the **Questionnaire on Satisfaction with e-Services and Information** was as follows:*

1. *Which of the following statements describes most accurately your experience of interaction with the public administration for the purpose of handling an administrative request via their websites or online services in the past 12 months, and the answers from the table above were offered.*
   - ***3,268** persons answered*

Annex 4

Action Plan for the Implementation of the eCroatia 2020 Strategy

List of figures

Lists of charts

Lists of tables