European Commission

Digital Public Administration factsheet 2023

Croatia

nifo

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1 Interoperability State-of-Play

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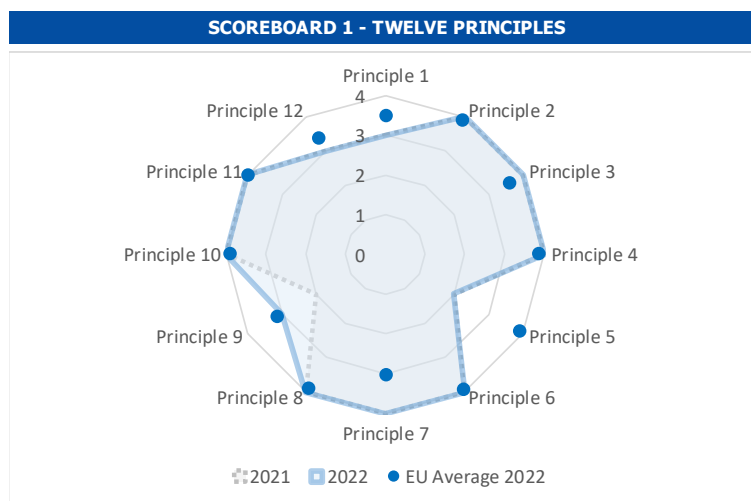In 2017, the European Commission published the European Interoperability Framework (EIF) to give specific guidance on how to set up interoperable digital public services through a set of 47 recommendations divided in three pillars. The EIF Monitoring Mechanism (MM) was built on these pillars to evaluate the level of implementation of the framework within the Member States. Whereas during the previous, the MM relied upon three scoreboards, the 2022 edition includes an additional scoreboard on cross-border interoperability, assessing the level of implementation of 35 Recommendations. The mechanism is based on a set of 91 Key Performance Indicators (KPIs) clustered within the four scoreboards (Principles, Layers, Conceptual model and Cross-border interoperability), outlined below.

Scoreboard 1 **Interoperability Principles**	Recommendation(s) n°
Principle 1 - Subsidiarity and Proportionality	1
Principle 2 - Openness	2-4
Principle 3 - Transparency	5
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Principle 5 - Technological neutrality and data portability	8-9
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Scoreboard 2 **Interoperability Layers**	Recommendation(s) n°
Interoperability Governance	20-24
Integrated Public Service Governance	25-26
Legal Interoperability	27
Organisational Interoperability	28-29
Semantic Interoperability	30-32
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Scoreboard 3 **Conceptual Model**	Recommendation(s) n°
Conceptual Model	34-35
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Scoreboard 4 **Cross-border Interoperability**

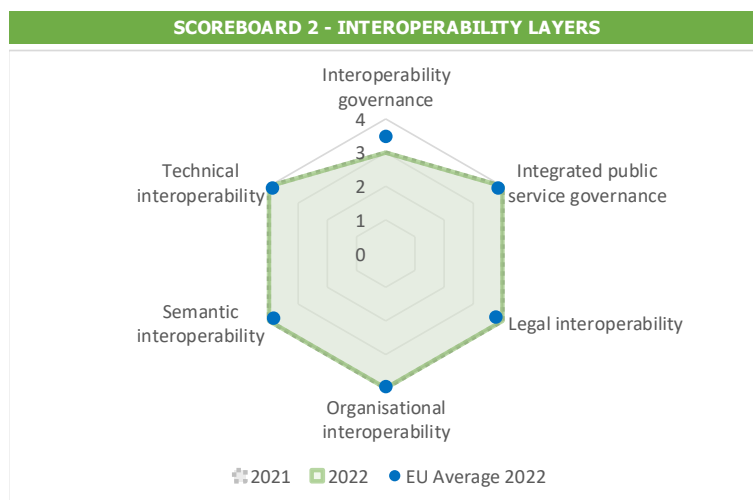Source: European Interoperability Framework Monitoring Mechanism 2022

Each scoreboard breaks down the results into thematic areas (i.e. principles). The thematic areas are evaluated on a scale from one to four, where one means a lower level of implementation and four means a higher level of implementation. The graphs below show the result of the EIF MM data collection exercise for Croatia in 2022, comparing it with the EU average as well as the performance of the country in 2021.

SCOREBOARD 1 - TWELVE PRINCIPLES

Principle 1, Principle 2, Principle 3, Principle 4, Principle 5, Principle 6, Principle 7, Principle 8, Principle 9, Principle 10, Principle 11, Principle 12

···: 2021   ■ 2022   ● EU Average 2022

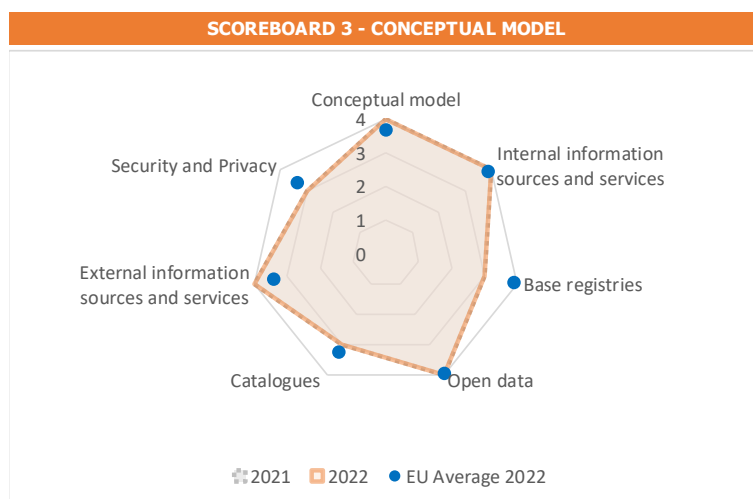Source: European Interoperability Framework Monitoring Mechanism 2022

Croatia's results in Scoreboard 1 show an overall good implementation of the EIF Principles, scoring at the European average for most of the Principles and higher than the EU average for Principle 7 (Inclusion and Accessibility). Room for improvement is available under Principle 5 (Technological neutrality and data portability) for which the score of 2 shows a medium performance in the implementation of corresponding recommendations. Indeed, the country should not impose any technological solutions on citizens, businesses and other administrations

that are technology-specific or disproportionate to their real needs (Principle 5 – Recommendation 08).

Source: European Interoperability Framework Monitoring Mechanism 2022

The Croatian results for the implementation of interoperability layers assessed for Scoreboard 2 show an overall good performance with mostly scores of 4. The only potential area of improvement to enhance the country's implementation of the recommendations under Scoreboard 2 is concentrated on interoperability governance, where Croatia scored 3. The lower score is due to the lower score for Recommendation 24, whereby Croatia should improve its participation in standardisation work relevant to citizens' or businesses' needs, to ensure that their requirements are met.

Source: European Interoperability Framework Monitoring Mechanism 2022

Croatia's scores assessing the Conceptual Model in Scoreboard 3 show a medium performance in the implementation of recommendations associated with different parameters, namely base registries, catalogues and security and privacy. To align with the European average, Croatia could improve the implementation of the recommendations related to Base Registries, by publishing the semantic and technical means and documentation needed for others to connect and reuse available information (Recommendation 38) and matching each base registry with appropriate metadata including the description of its content, service assurance and responsibilities, etc.

SCOREBOARD 4 - CROSS-BORDER INTEROPERABILITY

□ 2022 ● EU Average 2022
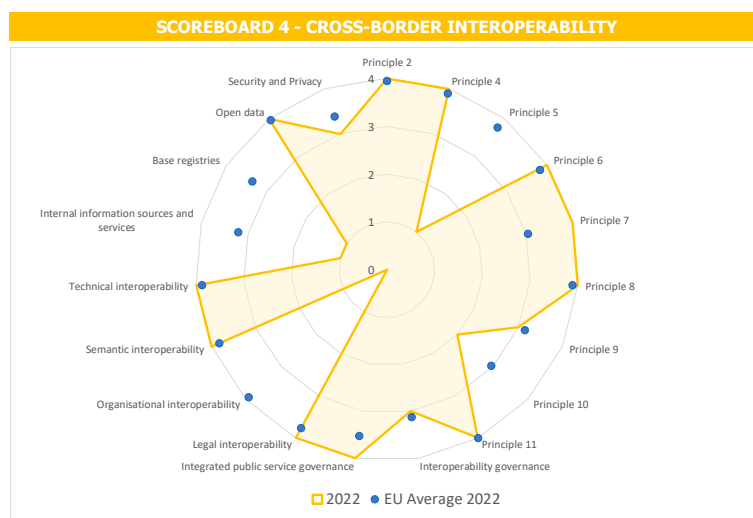
Source: European Interoperability Framework Monitoring Mechanism 2022

The results of Croatia concerning Cross-border Interoperability in Scoreboard 4 show an at least upper-middle performance of the country in 13 indicators. Particularly, Croatia has a high performance with the maximum score of four in Principle 2, 4, 6, 7, 8 and 11 as well as in integrated public services governance, legal, semantic and technical interoperability, and open data (i.e. Recommendation 41, 42 and 43). However, Croatia has still margin for improvement in relation to three indicators where the country obtains a low performance. For instance, efforts could focus on technological neutrality and data portability (i.e. Principle 5), and on the development of a shared infrastructure of reusable services and information sources that can be used by all public administrations (i.e. Recommendation 36).

Additional information on Croatia's results on the EIF Monitoring Mechanism is available online through interactive dashboards.

Curious about the state-of-play on digital public administrations in this country?

Please find here some relevant indicators and resources on this topic:
- Eurostat Information Society Indicators
- Digital Economy and Society Index (DESI)
- eGovernment Benchmark

2 Digital Public Administration Political Communications

2 Digital Public Administration Political Communications

2.1 Specific Political Communications on Digital Public Administration

Berlin Declaration on Digital Society and Value-Based Digital Government

In December 2020, the Croatian government signed the Berlin Declaration on Digital Society and Value-Based Digital Government, thus re-affirming its commitment – together with other EU Member States – to foster digital transformation in order to allow citizens and businesses to harness the benefits and opportunities offered by modern digital technologies. The Declaration aims to contribute to a value-based digital transformation by addressing and strengthening digital participation and digital inclusion in European societies.

The signatories agreed to work together on the digital transformation of governments, promote fundamental rights and democratic values in the digital sphere, enhance social participation and inclusion, foster digital empowerment and digital literacy, increase trust through security in the digital sphere, strengthen Europe's digital sovereignty and interoperability, create value-based and human-centred artificial intelligence (AI) systems for use in the public sector, and foster resilience and sustainability.

National Development Strategy 2030

The continuation of the digital transformation of the Croatian economy and society in the next ten years is also planned as part of the National Development Strategy 2030 (NDS). Namely, the transition to a sustainable and inclusive economic model based on the wider acceptance and use of digital and clean technologies is defined as a priority of public policies in the NDS. The NDS states that strategic digital capacities need to be strengthened and built by monitoring the development of digital services and digital transformation. Additionally, the further development of the State information infrastructure and the increased availability of interoperable digital public services to citizens and businesses are also seen as important. Finally, the development and construction of broadband infrastructure and electronic communication networks with large capacities enabling gigabit connectivity and capacity building, as well as the development of the digital competencies of employees in public administration and the judiciary are also priorities.

Programme of the Croatian Government for the Period 2020–2024

The Programme for the Period 2020–2024, developed by the government of the Republic of Croatia, represents a systematic and methodical overview of the instruments the government uses to achieve political stability, legal security, economic growth and social solidarity.

As part of the programme, efforts have been made to achieve a functional and accessible public administration and further digitalisation. Moreover, for the purpose of increasing the efficiency of institutions, measures include the simplification of rules and the acceleration of the work of the administration through the digitalisation of all processes with a view to expanding eServices to citizens and businesses, interconnecting all State administration bodies and establishing a uniform manner of communication between citizens and State administration bodies.

One of the programme's objectives relating to public administration is the accomplishment of the digitalisation of public services. The plan involves establishing a Central Government Information System, the optimisation of resources, the centralised management of all information systems and services in one place, and the introduction and use of electronic identification (eID) for all citizens.

National Recovery and Resilience Plan 2021–2026

In 2021, the government adopted the National Recovery and Resilience Plan 2021–2026 (NRRP), which was then approved by the European Commission. The NRRP defines the following objectives, which are instrumental to implementing the digital transition of the Croatian society and economy:

- Increasing the efficiency and transparency of the work of public sector bodies;

- Establishing management and coordination structures to plan and implement the digital transformation of society and public administration;
- Ensuring that public administration bodies have access to the tools and technologies needed to develop more economical and high-quality digital services in line with the needs of their users.
- These goals are planned to be achieved through the implementation of reforms and related investments. The proposed reforms are based on the three main objectives of the EU's digital future strategy (Shaping Europe's Digital Future), which should ensure that Europe seizes the opportunity and gives its citizens, businesses and governments control over digital transformation: (i) technologies in the interest of citizens; (ii) a fair digital economy that fosters competition; and (iii) an open, democratic and sustainable society.
- The Central State Office for the Development of the Digital Society (CSODDS) is responsible for implementing the reform C2.3. 'Digital transformation of society and public administration' aimed at solving existing challenges in monitoring and coordinating the digitalisation process. Under this reform, on 30 June 2022, measure C2.3.R4, aiming at strengthening connectivity as a basis for the digital transition and economy, was successfully completed.

new Strategy for Digital Croatia 2032

As part of the NRRP's reforms, the measure C2.3.R1 'Strategy for Digital Croatia, and strengthening of inter-institutional cooperation and coordination for a successful digital transition of society and economy' was adopted in December 2022. An appropriate foundation, i.e. a comprehensive strategic framework, was needed to create the prerequisites for a coherent and efficient information system, and the provision of high-quality and economical electronic public administration services at the national and European level.

The Strategy for Digital Croatia 2032 defines the vision of a country improved by digital transformation and positions Croatia as an economically competitive country on the digital map of Europe. It identifies key challenges, development needs and potentials, and singles out concrete priority areas through four strategic goals: (i) an innovative digital economy; (ii) a digitalised public administration; (iii) available and used large-capacity networks; and (iv) digital competencies for living and working in the digital age. The strategy was defined through a participatory method - a wide range of interested stakeholders, representatives of public authorities, civil sector organisations, representatives of the academic community and economic operators were involved in its development, with a total of 140 participants from more than 40 institutions.

Implementation Programme of the Central State Office for the Development of the Digital Society for the Period 2021–2024

The Implementation Programme of the CSODDS for the period 2021–2024 is a programme detailing activities aimed at the digitalisation of all parts of society, and promoting a balanced and inclusive development of the digital society for citizens, economic operators and the public administration. In the coming period, the focus will be on activities related to: (i) improving the security and coordination of the digital society; (ii) further developing public eServices; (iii) developing the State information infrastructure; (iv) improving the interoperability of information systems; (v) ensuring unique, permanent availability of public official documents and information of the Republic of Croatia; (vi) monitoring the implementation of the Law on Accessibility of Web Pages and Mobile Software Solutions of Public Sector Bodies; and (vii) promoting and improving the position of women in the information and communication technology (ICT) sector.

2.2 Interoperability

National Recovery and Resilience Plan

The proposed reform aimed at improving the interoperability of information systems will focus on the further development of public services and the national information infrastructure, as well as on the establishment of a central interoperability system. This initiative will also contribute to the goal of the European Data Strategy of creating a single data market and to the smooth flow of data across various sectors at the EU, but also at the Croatian, level, to the benefit of companies, researchers and public administration.

The goal is to establish the interoperability of public registers and information systems, and implement a central data warehouse and a platform for the exchange of Internet of Things (IoT) data. The introduction of a centralised IoT integration platform would enable the central collection and sharing of large amounts of data from various sensors, and make all necessary tools available to the public and private sectors. The platform would be able to host applications whose function is to process and share available data in real time.

National Development Strategy 2030

In the NDS, under the strategic goal 'Digital transition of society and economy', investments in the State information infrastructure will continue in order to facilitate the development of new business models based on digital technologies by introducing interoperable solutions.

Strategy for Digital Croatia 2032

The Strategy for Digital Croatia 2032 envisages the further development of a national interoperability framework, including a complete connection of the basic registers of all departments with a greater degree of inter-institutional cooperation and coordination. It is mentioned that one of the key development prerequisites for further accelerated digitalisation of public administration is precisely the upgrade and connection of basic registers within the interoperability framework of the central system, as well as the implementation of a central data warehouse through a greater degree of inter-institutional cooperation and coordination.
Also, eServices for entrepreneurship need to be further developed and a further opening of public services to entrepreneurs is planned in order to provide a better foundation for the development of new business models as well as new products and services. Furthermore, the existing national Open Data Portal, which will contain high-value data and be based on the interoperability of public data of the Republic of Croatia, needs to be improved. Through the use of digital disruptive technologies, such as AI and machine learning, companies have already used it in a test environment and will use it in the future in a real environment for the development of innovations.

2.3 Key enablers

2.3.1 Open Data, Reusability and Access to Public Information

Open Data Policy

On 19 July 2018, the government of the Republic of Croatia adopted the Open Data Policy. The Open Data Policy provides the strategic direction for further development of the policy of openness and transparency of public administration. Its implementation seeks to create the preconditions for opening up new jobs in the context of open data economies, to make better use of EU funds in planned projects and to increase the added value of the open data economy in the Republic of Croatia. During 2022, work on the new Open Data Policy began in order to align the policy with the new Law on Access to Information which came into force in June 2022.

2.3.2 eID and Trust Services

Electronic Identification Croatia

In May 2018, Croatia's Financial Agency (FINA) organised the first visibility event of Electronic Identification Croatia (ePIC), a project funded by the Connecting Europe Facility (CEF) EU programme. The project's goal is to promote the uptake and speed up the use of the eID Digital Service Infrastructure (DSI) among citizens and public bodies established in Croatia. In particular, it aims to integrate the eID DSI in all existing public eServices of the country. The coordinator of the ePIC project is FINA and the project partners are the Ministry of the Interior, the Ministry of the Sea, Transport and Infrastructure, the Ministry of Justice, the Ministry of Construction and Physical Planning, and the Official Gazette. The total value of the project is EUR 505 407, of which 75% (EUR 379 055) are co-financed by CEF.

Under the revision of Regulation (EU) N°910/2014 on electronic identification and trust services for electronic transactions in the internal market (eIDAS Regulation), the CSODDS participates in the work of the eIDAS Expert Group developing a toolbox for the implementation of the European Digital Identity framework.

A National Expert Team was also formed consisting of a representative of the Ministry of the Interior, and the Ministry of Economy and Sustainable Development.

During 2022, the Republic of Croatia began negotiations with the Organisation for Economic Cooperation and Development (OECD), with eID being given great importance.

2.3.3 Security aspects

National Strategy on Cybersecurity

Recognising the importance of security of cyberspace as a shared responsibility of all segments of society, in October 2015 the Croatian government adopted a National Strategy on Cybersecurity together with an Action Plan. Its purpose was a systematic and coordinated implementation of activities necessary to raise the capacity of the Republic of Croatia in the field of cybersecurity, in order to build a safe society in the cyberspace. The general aim of this strategy was also to exploit the market potential of the information society, in particular of cybersecurity products and services. Since it was the first comprehensive strategy in the Republic of Croatia in the field of cybersecurity, the primary objective in this context was to identify organisational problems in its implementation and raise awareness in society about the importance of this issue. Following the adoption of the EU's Cybersecurity Strategy for the Digital Decade, the revision of the National Strategy on Cybersecurity and the accompanying Action Plan have begun. The revisions were expected to be completed in 2022. However, due to the delay in the adoption (in December 2022) of the EU Digital Decade Policy Programme 2030 and Directive (EU) 2022/2555 on measures for a high common level of cybersecurity across the Union (NIS2 Directive), which have a significant impact on all national strategies, the Republic of Croatia will continue this work in 2023.

In 2017, the government of the Republic of Croatia renewed its National Security Strategy. Its strategic goals are: (i) achieving the highest level of population and critical infrastructure security and protection; (ii) establishing and developing a homeland security system; (iii) developing and maintaining a strong and active defence; (iv) developing a strong and sustainable economy, demographic renewal and revitalisation of the Croatian society; (v) developing a citizen-friendly public administration and strategic communication; (vi) protecting, strengthening and promoting the highest constitutional values and the Croatian national identity; and (vii) increasing the international reputation and influence of the Republic of Croatia. In this context, the Republic of Croatia will develop measures to strengthen the resilience of information and communication systems in cyberspace as well as to mitigate the negative consequences of any threats or disruptions thereto. The emphasis is on the key systems needed for the normal functioning of State institutions as well as the storage, transmission and exchange of citizens classified and personal data.

2.3.4 Interconnection of Base Registries

No political communication has been adopted in this field to date.

2.3.5 eProcurement

eProcurement Process

The NRRP addresses the importance of further digitisation and automation of the eProcurement process by ensuring the appropriate environment for economic entities participating in public procurement procedures. Under the measure C2.3.R3, the investment called 'Establishment of the new platform of the electronic public procurement system' is currently being implemented.

2.4 Domain-specific political communications

`new` National Public Administration Plan 2022–2027

The government of the Republic of Croatia adopted the National Public Administration Development Plan 2022–2027 in March 2022, together with the Action plan for its implementation. The plan will enable the transformation of the Croatian public administration into a modern, highly professional, efficient and transparent public administration, adapted to the needs of society and citizens, introducing quality principles in all public administration bodies. Such public administration will be an integral part of a competitive business environment, a lever for social and economic development, and a stronghold of the democratic process.

Over the next seven years, during the implementation of the National Public Administration Development Plan, the public administration must take advantage of digital transformation, improve its business processes and public services, reduce administrative burdens for citizens and businesses, and strengthen all public administration bodies and their employees.

Specific objective No. 2 is dedicated to the digital transformation of public administration and consists of the following priorities: (i) modernisation and further development of the State information infrastructure as a basis for safe and financially efficient interaction of public administration bodies; (ii) standardisation and networking, as well as achievement of complete interoperability of public administration, including the linking of core registers, with a greater degree of inter-institutional cooperation and coordination; (iii) use of comprehensively designed solutions in the field of public eServices and eStandards, in particular those related to the life situations of citizens, and promotion of the involvement of stakeholders (users and service providers) in shaping public eServices; (iv) opening of public administration data for the development of digital services; (v) promotion of the use of public eServices, as well as safety and trust of users in digital services solutions; and (v) education of officials on the provision of public eServices and users on their use.

To achieve satisfaction of users with regard to public administration, encourage competitiveness and sustainable economic growth, and promote the progress of society as a whole, the National Public Administration Plan puts emphasis on the development of human resources in public administration, the improvement of processes in public administration and quality of public services, and the digital transformation of public administration.

`new` National Judicial System Development Plan

On 23 March 2022, the government of the Republic of Croatia passed decisions on the adoption of the National Judicial System Development Plan for the period 2022–2027 and the Action Plan for its implementation for the period 2022–2024.

The National Judicial System Development Plan consists of short and medium-term strategic planning and implementing acts in the field of justice. Their implementation will enable further improvement of the efficiency and modernisation of the judicial system. It will also strengthen the State and judicial institutions.

The mid-term priorities relating to digital transformation are those of the third, fourth and fifth specific goals of the plan, i.e. (i) development of digital skills and competences for the digital transformation of the judiciary; (ii) modernisation of the judicial infrastructure and better technical equipment of the judiciary; (iii) digitalisation of court proceedings with the aim of speeding up and increasing accessibility to users; (iv) upgrade of the judicial ICT infrastructure and accompanying applications (modernisation of eFiles, ZIS and the system for monitoring cases of the State attorney's office); (v) increase in the interoperability, security and availability of eDocuments and public registers of the judicial sector (land registers, court register, etc.) as well as of registers of other State administration bodies exhibited at the Government Service Bus (GSB); (vi) continuation of the establishment of digital archives; and (vii) modernisation and further digitalisation of the prison and probation business processes system, including interoperability, and improvement and extension of usability of ZPIS and other modern technologies.

National Plan for the Development of Broadband Access 2021–2027

The National Plan for the Development of Broadband Access 2021–2027 forms a continuation of the policy of the government of the Republic of Croatia of strategically planning the development of broadband strategies, as in the periods 2006–2008, 2009–2012, 2012–2015 and 2016–2020. It is developed in accordance with the relevant legislative framework for the system of strategic planning and development management of the Republic of Croatia, as well as with the legislative and regulatory framework in the field of electronic communications. The plan is influenced by the EU strategic goals for broadband access in the period up to 2025 (see Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Connectivity for a Competitive Single Digital Market - Towards a European Gigabit Society (COM/2016/0587 final)).

National Health Development Plan 2021–2027

The National Health Development Plan 2021–2027 was adopted at the session of the government of the Republic of Croatia of 30 December 2021 as an umbrella sectoral planning document that establishes specific goals, measures, projects and activities that will be implemented under the auspices of the Ministry of Health with the basic goal of improving the health system and health outcomes for the population. It builds on the NDS, which, within the framework of strategic goal 5 'Healthy, active and quality life', plans to improve the healthcare system and care outcomes as a key national priority. As part of it, five special goals are set: (i) better healthy lifestyle habits and more effective disease prevention; (ii) improvement of the healthcare system; (iii) improvement of the model of care for key health challenges; (iv) the healthcare system as a desirable place to work; and (v) improvement of the financial sustainability of the healthcare system.

The National Health Development Plan is aligned with the NDS, the Programme of the government of the Republic of Croatia, the NRRP 2021-2026 and the European Commission's Cohesion Policy Guidelines for the period 2021–2027.

National Plan for Work, Protection at Work and Employment 2021–2027

As part of the active employment policy, the National Plan for Work, Protection at Work and Employment 2021–2027 pays special attention to improving the position of women, young people, long-term unemployed, Croatian veterans and other vulnerable groups on the labour market. It also aims at improving the skills and knowledge of the working population with an emphasis on digital and green skills. Moreover, the capacities of institutions on the labour market are strengthened to ensure quality provision of services to users.

In order to achieve the strategic goal defined by the NDS, one of the main priorities of public policy is to harmonise education with the labour market, and develop the skills and knowledge necessary for the digital and green transitions. Knowledge and skills must respond to the changing demands of the workplace, taking into account the transition towards a digitalised and green economy. One of the factors that influence the lack of the necessary knowledge and skills is the low rate of participation in adult education, as well as insufficient awareness of the importance of lifelong professional guidance and career development. According to Eurostat data (Research on the use of ICT11 in households and individuals), 53% of the population have a certain level of development of digital skills. This percentage is almost the same as the EU-27, but insufficient for the development of the green and digital economy. In this context, an important mechanism in bridging the mismatch between supply and demand in the labour market are education and training programmes provided through the voucher system.

Furthermore, another priority of public policy is certainly the activation of inactive persons of working age, given that the activity rate in the Republic of Croatia is lower than the activity rate in the EU, amounting in 2020 to 71.9% and 77.7%, respectively.

The performance of work via digital platforms, as a relative novelty on the world labour market, including the Croatian, is not part of the aforementioned national plan. However, bearing in mind that such a specific way of working is rapidly expanding and growing, especially after the global health and economic crisis caused by the COVID-19 epidemic, promptly reacting and regulating relationships that are not at all or insufficiently regulated by national legislation is important, as the lack of regulation can lead to new important imbalances and disturbances in the labour

market. At the same time, regulation needs to make sure that innovative forms of work that have a positive effect on employment and the activity of the workforce are not prevented.

`new` National Plan for the Development of the Education System 2027

The National Plan for the Development of the Education System 2027 defines in detail the implementation of the strategic goal and priority areas of public policies in the education sector as established in the NDS. The education system is increasingly part of the digital transformation. If used competently, fairly and effectively in teaching, digital technology can in every way enable high-quality and inclusive education and training, and be a stimulating tool for collaborative and creative learning. Therefore, a special set of measures are aimed at supporting the green and digital transition in education and training.

In March 2020, the Ministry of Science and Education adopted and published on its website the Strategic Framework for the Digital Maturation of Schools and the School System in the Republic of Croatia by 2030. Digital technologies are at the very core of introducing innovations into the learning and teaching system. Due to their intensive development, they require continuous investment in equipment and people to maintain the required level. Although the digital maturity of schools is gradually being improved by eSchool projects, further investments are necessary for the long-term transformation of the system. These investments add to national projects focused on infrastructure, tools and professional training, as well as the application of new technological solutions (especially AI) as a prerequisite for future development and improvement of the quality and fairness of the education system. The strategic framework identifies four strategic areas which are important for the digital transformation of the education system: (i) digitally mature environment; (ii) digitally mature and confident teachers; (iii) support to learning and teaching using ICT; and (iv) managing and making decisions based on data.

The challenges in terms of the infrastructure necessary to ensure the improvement of the conditions for the application of digital technologies in the education system are visible in the new goals set by the EU for its members. For instance, one of the three strategic goals of the EU's Digital Single Market is achieving access to all schools in the EU at speeds of at least 1 Gbps until 2025. In addition, also the EU's projections in the Digital Data Strategy on the growth of the amount of data from 2018 to 2025 by 530% show that constant investments in school infrastructure are needed to support digital processes transformations.

Implementation Programme of the Ministry of Economy and Sustainable Development 2021–2024

The Implementation Programme of the Ministry of Economy and Sustainable Development 2021–2024 will carry on the ongoing processes aimed at development and sustainability, primarily targeting the preservation of jobs, the strengthening of social security, economic recovery and a good business environment.

2.5 Innovative Technologies

2.5.1 Artificial Intelligence (AI)

Statement on Cooperation for Artificial Intelligence

In July 2018, the Minister of the Economy, Entrepreneurship and Crafts signed a Statement on Cooperation in the field of Artificial Intelligence. In this way, the Republic of Croatia committed itself to cooperating on a comprehensive and integrated European approach to AI, and agreed to promote European technology and industrial capacity in AI, including better access to public sector information.

2.5.2 Distributed Ledger Technologies

Workshop on Blockchain Application Development

Activities are ongoing regarding the construction of a national platform for blockchain as part of the measure C2.3.R3-I1 'Upgrade of the Shared Services Centre (SSC)' within the NRRP. As a

result, a blockchain platform will be built consisting of a service for joining public or private networks using open source blockchain solutions for applications developed by the public authorities in Croatia. A multi-tenant blockchain/distributed ledger technology (DLT) platform for the development of public authorities' applications will be established on the SSC infrastructure in accordance with the European Blockchain Services Infrastructure (EBSI) recommendations.

2.5.3 Big Data

National Recovery and Resilience Plan

Activities are ongoing regarding the project 'Establishment of a central data lake repository and business intelligence system' within the measure C2.3.R2 'Digital transformation of society and public administration' under the NRRP. The aim of the project is to introduce a data storage system together with its attributes and based on this data to design different data warehouses as an ecosystem that will enable an analytical organisational culture as a source of reliable summary data necessary for the decision-making process.

2.5.4 Cloud Computing

No political communication has been adopted in this field to date.

2.5.5 Internet of Things (IoT)

No political communication has been adopted in this field to date.

2.5.6 High-performance Computing

European High Performance Computing Joint Undertaking

Croatia has been a member of the European High-performance Computing Joint Undertaking (EuroHPC JU) from its start in 2018 and has committed to co-finance project activities carried out within the EuroHPC.
The Croatian National Competence Centre for High-performance Computing (HPC) has been established as part of the network of national Competence Centres for HPC in 33 Member States of the EuroHPC JU. Competence Centres for HPC are focal points coordinating all national initiatives and facilitating access of national stakeholders to European HPC competence and opportunities in different industrial sectors and domains. More in detail, they are providing HPC services to industry (including to small- and medium-sized enterprises or SMEs), academia and public administrations, delivering tailored/modular solutions for a wide variety of users, with the aim of easing and fostering the transition towards wider uptake of HPC in Europe. This will strengthen existing and develop new competencies in the field of HPC, and create the preconditions for joint participation in the definition of the financing and resource management policy in three areas: HPC, High-Performance Data Analytics (HPDA) and AI. By establishing a network of national Competence Centres for HPC, the project contributes to the full development of a sustainable European HPC ecosystem and the implementation of the HPC initiative of the European Commission.

2.5.7 High-speed Broadband Connectivity

Draft of the Very High-Capacity Network

The NRRP, under the measure C2.3.R4 'Strengthening connectivity as the basis of the digital transition of society and economy', sets the following objectives: (i) ensure timely and comprehensive implementation of the regulatory framework by enacting the Law on Electronic Communications transposing the provisions of Directive (EU) 2018/1972 on the European Code of Electronic Communications, as well as the implementation of the objectives of the National Plan for the Development of Broadband Access in Croatia in the period from 2021 to 2027; (ii) make available very high-capacity networks (VHCNs) to households with user-bound (download) speed of at least 100 Mbps; (iii) enable the main social-economic drivers and the availability of VHCNs with symmetric speed of at least 1 Gbps; and (iv) encourage investment in setting up 5G networks

in urban and rural areas and along major land transport routes (5G corridors), including motorways, State roads and railways, within the Trans-European Transport Network (TEN-T).

In this regard, an analysis of the potential application of additional forms of financial assistance for the construction of VHCNs has been carried out. The purpose of this analysis is to determine the applicability of financial instruments as a model for financing the investment of operators in the construction of VHCNs in the Republic of Croatia.

National Plan for the Development of Broadband Access 2021–2027

The National Plan for the Development of Broadband Access 2021–2027 (OJ 26/21) was adopted, defining four objectives including the implementation of VHCNs and 5G networks in Croatia. The objectives are in line with the Commission's Communication on the European Gigabit Society 2025. These objectives are:

- Making available VHCNs to households with user-bound (download) speed of at least 100 Mbps, with the possibility of upgrading the speed up to 1 Gbps;
- Enabling the availability of VHCNs with symmetric speed of at least 1 Gbps for public purposes; and
- Setting up 5G networks in urban and rural areas and along major land transport routes (5G corridors), including highways, State roads and railways, within the Trans-European Transport Network (TEN-T).

2.5.8 GovTech

GovTech Lab

The initiative to set up the GovTech Lab is envisaged for financing under the VFO 2021–2027. The purpose is to increase the uptake of innovative digital solutions in the public sector by implementing a platform for start-ups, innovative tech companies and the public administration to collaborate and find solutions for the challenges the public sector faces.

3 Digital Public Administration Legislation

3 Digital Public Administration Legislation

3.1 Specific Legislation on Digital Public Administration

Law on the State Information Infrastructure

On 15 July 2014, the Croatian Parliament adopted the Law on the State Information Infrastructure. The act establishes a central government portal system as a single point of contact in the virtual world. It also introduces the communication of public sector institutions with citizens via a State-issued mailbox, a national identification and authentication system, a system of basic and public registers, a public register for the coordination of projects established for the State information infrastructure (ProDII) and a metaregister with all information needed for their interconnection, thus creating the preconditions for the 'paperless government' project. The law also defines the body responsible for the development and implementation of ICT in the public sector and the instruments for coordination.

Decree on Organisational and Technical Standards for Connecting to the State Information Infrastructure

In July 2017, the new Decree on Organisational and Technical Standards for Connecting to the State Information Infrastructure (OJ 60/17) was adopted. The decree lays down organisational and technical standards for connecting to the State Information Infrastructure, as well as the conditions and activities necessary for the launch, implementation, development and supervision of projects related to the State Information Infrastructure, its management, its development and other elements necessary for operating it.

Based on the legislative activity plan for 2023, the CSODDS has started work on amendments to the Law on the State Information Infrastructure as well as to the corresponding Decree on Organisational and Technical Standards for Connecting to the State Information Infrastructure.

3.2 Interoperability

Single Digital Gateway

The European Parliament and the Council adopted the Regulation on establishing a Single Digital Gateway to provide access to information, to procedures and to assistance and problem-solving services. Its implementation officially started on 11 December 2018. The CSODDS and the Ministry of the Economy, Entrepreneurship and Crafts were designated to ensure horizontal coordination of implementation in cooperation with all relevant bodies for the particular administrative areas and public policies necessary for the development of the Single Digital Gateway. As part of the implementation of the EU Regulation on the Single Digital Gateway, the CSODDS coordinated all competent authorities that have posted all important information on the Your Europe portal, which was released on 12 December 2020.

Under the NRRP, the reform called 'Improving the interoperability of information systems' implies (i) the establishment, upgrade and interconnection of core registers, and the establishment of a Central Interoperability System in accordance with the European Interoperability Framework (EIF); (ii) full implementation of the Once-Only principle by 2023 in accordance with the Regulation on the Single Digital Gateway; and (iii) the establishment of cross-border data exchange between EU Member States by the end of 2023. In order to connect to the Single Digital Gateway Once-Only Technical System (OOTS) for the cross-border automated exchange of evidence and application of the Once-Only principle, the CSODDS takes part in workshops according to the defined six subgroups (evidence mapping, OOTS specifications, operational management, security, standardisation of the OOTS data model, and testing and implementation).

3.3 Key Enablers

3.3.1 Open Data, Reusability and Access to Public Information

Act on the Right to Access to Information

The right to access to information is a fundamental human right protected by the Constitution of the Republic of Croatia, the European Convention on Human Rights and Freedoms, the Charter of Fundamental Rights of the EU and the Act on the Right to Access to Information (OJ 25/13, 85/15, 69/22).
The right to access to information is the right of all natural and legal persons to seek and obtain information held by public authorities, including the obligation for public authorities to provide access to the requested information or to disclose information irrespective of the request made and the purpose for which the information is to be used when such disclosure arises out of the obligations prescribed by law or other regulations. The right to access to information is achieved by proactively disclosing information on the internet, as public authorities are obliged to under Article 10 of the act, as well as submitting information requests to public authorities. The Act on the Right to Access to Information gives all domestic and foreign natural and legal persons the right to access information in the same way and under equal conditions.

Reuse of Public Sector Information

The right of users to reuse public sector information is established the provisions of the Act on the Right to Access to Information of 2013, as further reinforced by the amendments of 2015 and 2022. Reuse means the use of information held by public authorities by natural or legal persons for commercial or non-commercial purposes other than the original purpose for which the information was generated within the framework of a statutory regulation or other regulation of a given scope of work or within the activities that are normally considered as a public affair. The right relates to information held by public authorities which is suitable for reuse, as registers, databases, records or other types of information, so that it can be used within IT systems for the development of applications. The reuse of public sector information and open data, published on the internet free of charge for free use by all, are drivers of the European digital market.
Croatia's Open Data Portal was launched in March 2015.

Standard for the Development of Public eServices in the Republic of Croatia

In April 2021 the government of the Republic of Croatia adopted the Conclusion on the Standard for the Development of Public eServices in the Republic of Croatia. The standard sets out activities and measures to ensure uniformity of eSservices, and the maximum level of quality and accessibility. All the necessary information about the implementation of the standard is available on the website of the CSODDS.

3.3.2 eID and Trust Services

eIDAS

In July 2014, Regulation (EU) No. 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Council Directive 1999/93/EC (eIDAS Regulation) was adopted. It was released in order to enhance trust in electronic transactions in the internal market, by providing a common foundation for secure electronic interaction between citizens, businesses and public authorities, simpler and more secure transactions, and mutual recognition of electronic identification.
The Regulation will be revised and extended to the private sector, promoting reliable identification for all Europeans. The European Commission has proposed a new direction in cross-border electronic identification, through the concept of a European digital identity that would overcome the existing barriers to the cross-border use of eServices and credentials. The intention is to involve the private sector too.
The CSODDS actively participates in the revision activities of the eIDAS Regulation and in the work of the eIDAS Expert Group developing a toolbox for the implementation of the European

Digital Identity Framework. The announced concept of the 'digital wallet' will be based on user control, improved data control and mobility. It would also link identities and credentials, such as driver's licenses, diplomas and professional accreditations, and enable better management of user rights. On the national level, an expert team has been established consisting of a representative of the Ministry of the Interior, and the Ministry of Economy and Sustainable Development.

Decree on the Provision and Use of Trust Services

The Decree on the Provision and Use of Trust Services (OJ 60/19) was published in June 2019 and lays down the measures, the procedures and the forms of protection of electronic trust services as well as other methods of identification that provide security equivalent to a physical presence in terms of reliability and by which a qualified trust service provider verifies the identity of signatories. The decree also establishes the preconditions and the rules for automated remote electronic signature and sealing, the general and specific operating conditions for trust service providers, the rules on temporary suspension of certificates for electronic signatures and certificates for electronic seals in cases where the certificate temporarily loses its validity, and the mandatory assurance of trust service providers.

Electronic Signature Act

Croatia was one of the first countries to include digital signatures in its legislation. The Electronic Signature Act (Law OJ 10/02, amended by Law OJ 80/08 and Law OJ 30/14) has then been supplemented by a series of ordinances and regulations, such as the Regulation on the Scope of Operations, Content and Responsible Authority for Operations of Electronic Signature Certification for State Administration Bodies (OJ 146/04).

The Law on the Electronic Signature had become outdated and was replaced by the Act on the Implementation of Regulation (EU) No. 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC (OJ 62/17).

3.3.3 Security aspects

Act on Cybersecurity of Operators of Essential Services and Digital Service Providers

Croatia fully and successfully transposed in the national legislation the Directive on security of network and information systems (NIS Directive) through the Act on Cybersecurity of Operators of Essential Services and Digital Service Providers, adopted in July 2018. The associated Decree on Cybersecurity of Operators of Essential Services and Digital Service Providers was adopted in parallel.

The contact point for the implementation of this act is the Office of the National Security Council, and the body responsible for digital service providers is the Ministry of the Economy, Entrepreneurship and Crafts.

General Data Protection Regulation

The EU General Data Protection Regulation (Regulation (EU) 2016/679), known as GDPR, entered into force in 2016. It replaced the EU Data Protection Directive. In Croatia, the Act on the Implementation of the General Data Protection Regulation was enacted in April 2018 and came into force in May 2018. It replaced the prior Croatian data protection law.

new Act on the Implementation of Cybersecurity Certification

The European Parliament and the Council adopted Regulation (EU) 2019/881 on ENISA (the European Union Agency for Cybersecurity) and on information and communications technology cybersecurity certification, also known as the Cybersecurity Act. The regulation establishes a unique certification system in the territory of the Union, and prescribes the classification of all ICT products, services and processes in three guarantee levels of cybersecurity with regard to the risk of threats. The establishment and implementation of the sanction regime are left to the Member States. In Croatia, the Cybersecurity Act was transposed through the Act on the Implementation

of Regulation (EU) 2019/881, i.e. the Act on the Implementation of Cybersecurity Certification (OJ 63/22), including the sanction regime.

3.3.4 Interconnection of Base Registries

Decree on the Establishment of the Public Register for the Coordination of Projects on the State Information Infrastructure

On 13 November 2014, the Croatian government adopted the Decree on the Establishment of the Public Register for the Coordination of Projects on the State Information Infrastructure (ProDII Register). The decree was set up with the purpose of rationalising, developing a direction for and coordinating all the activities and projects on the State Information Infrastructure, simultaneously increasing the quality of public services as well as preventing future planning and implementation of the same or similar projects in the public sector.

Central Electronic Registry

In May 2018, the Decree on Establishing the Central Electronic Register of Development Projects was adopted (OJ 42/18), regulating the establishment and the management of the Central Electronic Register of Development Projects. Specifically, the decree lays down how development projects should be linked to strategic planning documents, the obligation of entering data in the project register, the type of data that should be entered and the ownership of the project register.

`new` Business Register

The Court Register Act (OJ 01/95) regulates the establishment, structure and maintenance of the Business Register (Court Register), and defines the registration procedure. The Decision on the Means and Conditions for Access to the Court Register (OJ 138/02) determines the access to the data recorded in the Court Register via the internet. In addition, the Ordinance on Entry in the Court Register (OJ 22/12) governs various aspects, such as the form and method for registering data, the protection and storage of the register data, the content and form of the application for registration, the content of other prescribed forms and codes, as well as other issues relevant to the register and the use of IT. The amendments to the Court Register Act published in the Official Gazette 40/19 regulate the registration of a company via the internet. Subordinate legislation that regulates this area includes the Regulation on the Procedure for the Registration of a Company via the Internet (OJ 65/19, OJ 34/22).

`new` Land Register

As far as the Land Register is concerned, the Law on the State Survey and the Real Estate Cadastre (OJ 16/07) regulated the State survey, the real estate cadastre, the Spatial Unit, the National Spatial Data Infrastructure, the jobs in the local government, geodetic works for special purposes, and the jurisdiction over the State survey and the real estate cadastre.

The act currently in force is the Law on the State Survey and the Real Estate Cadastre (OJ 112/18), which regulates the State survey, the real estate cadastre, the infrastructure cadastre, the Register of Buildings, the Register of Territorial Units, the Register of Geographical Names, the jurisdiction over the registers mentioned above and the performance of the related tasks, such as the tasks of the State geodetic administration, the preservation and use of data, and the supervision of activities regulated by this act.

In November 2019, the Regulation on Electronic Business Operations of Users and Authorised Users of the Land Register System (OJ 108/19) was adopted, regulating technical conditions, conditions of use and costs of electronic business transactions in land registers by users and authorised users of information systems in application in court operations.

In OJ 128/22 amendments to the Land Register Act were published, which entered into force on 10 November 2022. A major innovation is the introduction of exclusively electronic submission of proposals for registration in the Land Register, and only through notaries and lawyers who are mandatory users of electronic communication with the court.

3.3.5 eProcurement

`new` Public Procurement Act

Croatia's legal basis for public procurement is the Public Procurement Act (OJ 120/16). As Croatia is an EU Member State, its public procurement system is fully aligned with the EU acquis. The Ministry of Economy and Sustainable Development is responsible for key aspects of the public procurement system, including coordination and oversight in cooperation with several other public bodies.

A new public procurement platform financed by the NRRP is now being implemented through measures C.2.9. ('Strengthening the procurement framework') and C.2.3.R3-I9 ('Establishment of a new platform for the Electronic Public Procurement Bulletin of the Republic of Croatia or EOJN') In addition, the possibility of increasing efficiency and reducing costs by expanding the scope of central or joint procurement will be explored. For example, modern IT solutions such as eMarketplaces enable central procurement bodies and their contractors to productively keep up and rundown framework agreements, eliminate paperwork, improve transparency in public spending and increase standardisation.

Public procurement will be encouraged using advanced contracting mechanisms for ICT/digital projects in the public sector, in line with EU and domestic regulations, such as innovation partnerships, competitive dialogue and dynamic procurement systems. A relevant measure in this regard is specified under measure C2.9.R3 'Innovative public procurement'. Although the Public Procurement Act has already introduced a new 'Innovation Partnership' procurement procedure to allow contracting entities to carry out procurement procedures for innovative goods, services or works, its use should be encouraged by raising the level of knowledge of all stakeholders in public procurement. To that end, the reform focuses on the use of public procurement for innovative solutions, i.e. encouraging the public sector to procure the latest technological solutions, strengthening the public procurement framework related to innovation, strengthening the capacities of procurement procedures, and raising awareness among interested public and private sector stakeholders about innovation procurement.

Efficient public procurement is also one of the main prerequisites for one of the priority areas of the Strategy for Digital Croatia 2032, i.e. 'Achieving full interoperability of public administration while enabling access to open data for citizens and businesses'. Legal provisions will be harmonised in order to incorporate interoperability standards into public procurement procedures with a view to encouraging the procurement of interoperable IT solutions.

According to the amendments to the Law on Amendments to the Law on Public Procurement (OJ 114/22) adopted in 2022, complaints are now submitted by electronic means of communication through the interconnected information systems of the State Commission and the EOJN of the Republic of Croatia.

eInvoicing

In the eInvoicing area, Croatia surpassed the EU average by 10.8 percentage points in 2021. This result is largely due to two developments. The first is the contactless way of doing business during the COVID-19 pandemic. The second is the application of the Law on Electronic Invoicing in Public Procurement (OJ 94/18), introducing the obligation to receive eInvoices in public procurement procedures from 1 December 2018 and to issue eInvoices in public procurement procedures from 1 July 2019. Although the Law only introduces an explicit obligation towards public contracting authorities, it has also undoubtedly encouraged business entities to exchange eInvoices with each other. Decision No. 124/2015 mandates the reception and processing of eInvoices for all central contracting authorities and entities.

An eInvoice is an invoice issued, transmitted and received in a structured electronic format that enables it to be processed automatically. For eInvoices to be exchanged automatically, an appropriate system or application support for eInvoice exchange is required, which must be in accordance with the applicable standards and the law. FINA is defined by the Law on Electronic Invoicing in Public Procurement as a central information intermediary that receives and sends eInvoices and supporting documents following the European standard. According to these provisions, other information intermediaries are obliged to connect to its central platform for exchanging eInvoices. Based on a Public Key Infrastructure (PKI), the eInvoice uses digital certificates, and ensures that each user has a registered identity and that sensitive information is encrypted.

The Ministry of Economy and Sustainable Development is responsible for the eInvoicing policy, including its supervision. All necessary information is disclosed on its website, including the implementation of eInvoices and a list of information intermediaries connected to the central platform and complying with the standard for eInvoicing.

3.4 Domain-specific Legislation

Administration

The Regulation on Amendments to the Regulation on the Central Information Technology System for the Electronic Collection of Administrative Fees (OJ 86/21) is the legal act upon which the State Secretary of the CSODDS based the adoption of the Decision on the Structure, Entry and Management of Master Data of Public Bodies and their Services in the eFees System. The Decision determines the structure, entry and management of master data in the eFees system, the sources from which FINA takes over master data, the confirmation of data accuracy from the State administration body authorised by FINA to order a new entry and change of master data, and the method of changing these data.

The Regulation on the Tariff of Administrative Fees (OJ 156/22) stipulates that certain fees do not have to be paid (i) for subsequent submissions in which the party only requests a faster procedure according to the previously submitted request; (ii) for submissions sent by the parties electronically through the eCitizen system; or (iii) if the amount for the fee is reduced.

The Regulation on Office Management (OJ 75/21) stipulates that (i) the office operation information system must enable complete office operation in electronic form; (ii) public bodies carry out official correspondence with each other, and with citizens and legal persons primarily electronically; and (iii) all officials of a public legal body must have access to the office operation information system in accordance with the assigned powers based on the decision of that body. Pursuant to the Regulation, all public bodies should have an office operation information system established in accordance with its provisions by 1 January 2023.

Judiciary

In January 2020, the Regulation on Electronic Communications (OJ 05/20) was adopted, introducing eCommunication as an instrument for participants in court proceedings to present their submissions electronically, to receive court documents in a safe electronic mailbox and to have remote access to court cases.

Pursuant to the Civil Procedure Act, the Ordinance on Electronic Communications (OJ 05/20) has introduced a new mode of communication that enables participants in court proceedings to use electronic communication with courts.

Health

The Law on Health Data and Information (OJ 14/19) provides the basis for a harmonised legal framework for the management of health data and information as well as for comprehensive and efficient use of IT within the framework of eHealth.

Commerce

The Law on Amendments to the Law on Commercial Companies (OJ 40/19) introduces the possibility of registering a company online. Subordinate legislation that regulates this area is the Regulation on the Procedure for the Registration of a Company via the Internet (OJ 65/19). The procedure for establishing a company is carried out through an information system available on the Court Register's website or through a single information system established for starting a business in accordance with the Regulation on Determining Transactions.

The Law on Electronic Commerce regulates the provision of information society services and the liability of IT services providers, and lays down the rules concerning the conclusion of contracts in electronic form. Its provisions do not apply to data protection, taxation, notarial activities, and the representation of clients and protection of their interests before the courts. The law was first adopted on 15 October 2003 (OJ 173/03) and then amended on 20 May 2008 (OJ 67/08). The latest version was voted on 13 March 2009 (OJ 36/09, OJ 130/11, OJ 30/14 and OJ 32/19).

Accessibility of Web Pages

In February 2019, the Law on Accessibility of Web Pages and Mobile Software Solutions of Public Sector Bodies (OJ 17/19) was adopted. According to the provisions of Directive (EU) 2016/2102, it prescribes to comply with international standards concerning the creation, appearance and structure of websites, as well as the navigation and search through their content.

Finance

The Law on eCash (OJ 64/18) was adopted in July 2018. It regulates electronic money and electronic money issuers, the conditions for establishing, operating and terminating the work of electronic money institutions established in the Republic of Croatia, and the conditions under which electronic money institutions established outside the Republic of Croatia can operate in the Republic of Croatia.

In August 2018, the Decree on the Regulatory Capital of the Institutions that Operate with Electronic Money (OJ 73/18) was adopted.

In 2019, two additional decisions were adopted, namely the Decision on the Register of Payment Service Providers and Electronic Money Issuers (OJ 5/19) and the Decision on the Regulatory Capital of Electronic Money Institutions (OJ 126/19).

Business

In June 2018, the Decree on Launching the eBusiness Project (OJ 53/18) was adopted. It enables centralised access to information about public services for businesses, secure access to business data, and electronic communications between business entities and the public sector.

In November of the same year, the Decree on the Conditions, Methods and Terms for Establishing a System for Starting a Business (START) (OJ 103/18) was adopted.

Communication

In July 2022, the new Law on Electronic Communications (OJ 76/22) entered into force, transposing Directive (EU) 2018/1972 of the European Parliament and the Council of 11 December 2018 on the European Electronic Communications Code (EECC). The EECC is significant because it marks an important step towards the consolidation of the legal framework of electronic communications, which is crucial in meeting the EU goal of establishing gigabit connectivity throughout the EU and 5G coverage in all populated areas by 2030.

Work

The Law on Amendments to the Labour Law (OJ 151/22) regulates work performed using digital work platforms, defines relevant terms, stipulates special rights and obligations arising between employer and employee, prescribes the minimum level of rights and working conditions when such work is performed by other natural persons, and establishes the rights and responsibilities of digital work platforms in order to ensure their transparent working.

3.5 Innovative Technologies

3.5.1 Artificial Intelligence (AI)

National Plan for the Development of Artificial Intelligence

The Ministry of Economy and Sustainable Development is considering enacting the National Plan for the Digital Transformation of the Economy and the National Plan for the Development of Artificial Intelligence by the end of 2026. The drafting and completion of these documents are envisioned within the investment C.1.1.2.R3-I1 under the Croatian NRRP. This exercise will be carried out by resorting to the technical assistance provided by experienced international policy advisory organisations, in cooperation with identified relevant national stakeholders.

AI in healthcare has been identified as an underrepresented field, despite high activity in the ICT/data science/AI sector. In order to bridge that gap, a European Digital Innovation Hub (EDIH) candidate, AI4HEALTH.Cro, specialising in offering services in the field of AI-based innovative

solutions for the healthcare and medicine sectors, has been founded. Led by the largest Croatian scientific institute, namely the Ruđer Bošković Institute (RBI), the consortium involves partners from the public sector, healthcare, academia and industry.

The RBI and the University Hospital Centre Zagreb collaborate on organising a Special Issue on Trustworthy AI for Healthcare and Medicine, promoting and consolidating research activities in trustworthy aspects of AI for various healthcare applications and challenges from two AI research perspectives: (i) intelligence augmentation for diagnosis, clinical treatment and screening purposes; and (ii) intelligent infrastructures for smarter healthcare and medicine.

3.5.2 Distributed Ledger Technologies
No legislation has been adopted in this field to date.

3.5.3 Big Data
No legislation has been adopted in this field to date.

3.5.4 Cloud Computing
No legislation has been adopted in this field to date.

3.5.5 Internet of Things (IoT)
No legislation has been adopted in this field to date.

3.5.6 High-performance Computing
No legislation has been adopted in this field to date.

3.5.7 High-speed Broadband Connectivity
No legislation has been adopted in this field to date.

3.5.8 GovTech
No legislation has been adopted in this field to date.

4 Digital Public Administration Infrastructure

4 Digital Public Administration Infrastructure

4.1 Platforms and applications

4.1.1 National Platforms and Applications

new eCitizen Portal

By setting up the eCitizen system, a major step was taken to modernise public services and to bring public administration closer to citizens.

Since the beginning of its operation until the end of December 2021, unique users of the eCitizen system amounted to 1 720 201 and logins to the available eServices totalled as many as 119 487 359. By the end of 2022, 99 eServices were available to citizens on the eCitizen Portal. The total number of eServices available on the eCitizen Portal in 2022 was nominally reduced because of optimisation and consolidation of existing eServices into new portal eServices.

An integral component of the eCitizen Portal is the National Identification and Authentication System (NIAS) that serves as a secure and reliable identification and authentication mechanism for citizens who access public eServices through the appropriate credentials. Another integral part is the User Mailbox, where public institutions can send 122 kinds of personalised messages with various information and notifications, such as information about the expiration of personal documents, individual documents and the status of individual proceedings.

On 3 May 2021, the redesigned eCitizen Portal was released to the public. The redesign process was guided by an agile project management methodology, and the redesign itself was aimed at improving the portal user experience, as well as improving the interface clarity, simplicity and usability. All pages are equally usable regardless of the device through which the citizen accesses them (computer, laptop, tablet, smartphone, etc.). The redesign also introduced a new central component, the Navigation Bar, as part of a single user interface in all public eServices, whether for individuals or business users. The Navigation Bar allows users to easily and quickly select the entity on whose behalf they want to act and use the selected eService (business users for their businesses and parents for their children). The selection of the entity on whose behalf the user wants to act is retrieved automatically from public registers.

During 2022, the CSODDS continued to perform tasks related to the creation, management and maintenance of eServices in the eCitizen system and to support the work of the agile team which is working on the redesign and further improvement of the eCitizen system. The new eServices implemented in the eCitizen system during 2022 were:

- eEnforcement, i.e. a service enabling the submission of motions for enforcement to municipal courts on the basis of an authentic document;
- My eCulture, i.e. a service providing access to digitised material intended for citizens, scientists and the academic community;
- eServices of the Croatian Pension Insurance Institute, i.e. a service enabling the submission of requests for the exercise of various rights, namely rights from pension insurance, child allowance, national allowance or issuance of portable document A1;
- eProcedures related to membership of the Croatian Chamber of Psychotherapists which provides the option of submitting requests for registration in the directories, registers, and records maintained by the Croatian Chamber of Psychotherapists;
- Register of Auditors, i.e. a service enabling individuals and legal entities to submit requests for registration and for issuing certificates for auditors;
- Mandatory Fee Payment Calendar, i.e. a service enabling business entities to review the fees and taxes they are obliged to pay, with the amounts and deadlines for their settlement, and to prepare data/orders for payment;
- eRequest, i.e. a service enabling the submission of a request for a water permit for the discharge of wastewater and the use of water; and
- Single Information Point of the Cadastre Infrastructure System, i.e. a service enabling users to issue documents, and search metadata and spatial data of the cadastre infrastructure.

The Strategy for Digital Croatia 2032 calls for further digitisation of public services as one of the key strategic guidelines for the transformation of public administration. The goal is to digitise all key public services that solve complete life situations, which will represent the strategic direction of the future development of eServices.

In 2022, the implementation of the relevant investment under the NRRP began. It will introduce mobile services (mCitizen) and establish a single contact centre for customer support.

eBusiness

The eBusiness project aims at contributing to administrative relief for business entities through electronic communication with public administration. Its main goal is to achieve financial and time savings for businesses, and increase the availability of public services and efficiency of public administration while strengthening the capacity of officials and employees.

The components of the eBusiness project, which are also integral component of the State Information Infrastructure, are: the eCitizen Portal (Gov.hr) with public information and electronic services for businesses, the NIAS with a new subsystem of eAuthorisation for a single login to eServices for business users and the Navigation Bar as part of a common user interface of eServices. The Navigation Bar enables users to choose the business entity on whose behalf they wish to act, and also contains the link to the User Mailbox (KP) for secure and reliable communication with individual business entities. It is connected with various business registers. Users authorised to represent legal entities are automatically retrieved trough the Navigation Bar from several registers: the Court Register, the Registers of Non-profit Organisations (Register of Associations, Foundations, Political Parties and Religious Communities), the Trade Register for Crafts, the Register of Farmers and Family Farms, and the Register of Budgetary Users. In addition, the persons authorised to represent may, through the eAuthorisation and its ePower of Attorney form, grant the right of access to other persons within their business entity or other persons in another business entity. This functionality provides all business users with the necessary flexibility while accessing to and using the public eServices available.

The project ended in October 2022 and all key performance indicators (KPI) of the project were fulfilled. At the project finalisation, the platform included 13 public eServices intended for business entities, which are provided by eight bodies and institutions within their jurisdiction. For this purpose, training was also offered to more than 45 employees from over 20 public bodies.

Information Catalogue

eInformation, or the Information Catalogue, has been part of the eCitizen system since April 2021. It includes various information that State administration bodies provide to citizens, distributed through twelve topics, i.e. life situations that are further branched into a number of sub-topics. The topics and areas covered are active citizenship and leisure, health, finance and taxes, family and life, work, Croatian veterans, citizenship and documents, education, rule of law and security, housing and environment, transport and vehicles, and business. The goal is to provide access to information on public services in one place, without the need to log in to the eCitizen portal, which puts users and their needs first.

Pursuant to the Decree on Organisational and Technical Standards for Connecting to the State Information Infrastructure (OJ 60/17), the Office of the Prime Minister of the Republic of Croatia coordinated the inclusion of the website of public sector bodies in the Central State Portal 'gov.hr'.

new eConsultation

The eConsultation Portal is the central State portal for public consultation that enables participation in open public consultations in the process of passing laws, as well as other regulations and acts. It was established in accordance with Article 11 of the Act on the Right to Access to Information. The Act stipulates that State administration bodies responsible for drafting laws are obliged to publish draft regulations, general acts or other documents for public consultation on the central State internet portal for public consultation, i.e. eConsultation.

In 2021 a new project started. 'eConsultations - Upgrading and improving the legislative process of public consultation' aimed at technological, process and functional improvement of the existing system, as well as capacity building and improvement of the work of the competent bodies of the eConsultation system. Long-term practice of using the existing system had pointed out the need for technical and functional improvement of the portal, including expanding the system to local and regional government bodies. The grant agreement from the European Social Fund for the project was signed in August 2021, for a project duration of 24 months. The total value of this project is HRK 3 749 983 (EUR 497 708.28), of which up to 85% is co-financed through the European Social Fund. The project partner in the implementation of this project is the Office for Legislation of the Government of the Republic of Croatia (UZZ).

During 2022, an expert working group was established in which representatives discussed about challenges in working with the system, necessary upgrades and further process improvement. An analysis of the existing system was carried out, including the analysis of the system's current functionalities and their use, a stakeholder analysis and identification of the need for consultations. Proposals were made for improvement of the customer support system and the eConsultation system.

HITRO.HR Portal

HITRO.HR Portal is a service provided by the government to facilitate rapid communication between citizens and businesses, and the State administration. This eService infrastructure serves as a one-stop shop, as it enables citizens and businesses to enjoy quicker and simpler access to information and services in one location. Furthermore, it aims to improve service levels by increasing the speed, efficiency, flexibility and transparency of the State administration. It enables citizens and businesses to perform most of the necessary actions for starting a company, opening a craft business and registering changes in the Register of Business Entities for existing companies. Through the use of smart cards and digital signatures, citizens have access to the following services: (i) 'How to start a limited liability company'; (ii) 'How to start a craft business', enabling entrepreneurs to carry out the process of business creation online; and (iii) Registration in the Register of Business Entities at the Croatian Bureau of Statistics.

Open Data Portal

In March 2015, the Open Data Portal was established. It provides access to data published by public authorities for reuse for commercial and non-commercial purposes. It was developed by the Ministry of Public Administration and since 2017 the CSODDS has been in charge of maintaining it. The Open Data Portal is linked to the eCitizen system and the NIAS is used to access the portal. In cooperation with the Information Commissioner, public authorities are being educated on the publication of open data.

The Open Data Policy of 2018 represents the strategic direction for further development of the public administration openness and transparency policy, whose implementation aims to create and foster a stimulating environment for opening up data held by public authorities, and reusing them to generate new social and economic value. During 2022, work on a new Open Data Policy began in order to align the policy with the new Law on Access to Information which came into force in June 2022.

In May 2019, the project 'Adjustment of public sector bodies' information systems to the Open Data Portal' was launched. The purpose of the project is the functional, process and technological improvement of the Open Data Portal in order to increase: (i) the quantity and quality of datasets published by public sector bodies; (ii) the number of applications using open data; and (iii) the visibility of the Open Data Portal towards the European Open Data Portal. In May 2021 a new application solution for the Open Data Portal was published to provide a technological, process and functional upgrade of the old Open Data Portal. During 2022, project activities included the preparation for the implementation of the two remaining elements of the project, namely 'Education of employees of State and public authorities' and 'Implementation of an improved open data model for a selected set of institutions (minimum eight)'.

At the end of 2022, 1 787 datasets from 455 publishers were published on the portal, which are completely free to use.

Central Salary Calculation System

Croatia implemented the Central Salary Calculation System (COP) in all institutions that have salaries financed from the State budget. COP is a web-based application, providing salary calculations for the whole public administration, which gives the government of Croatia the possibility to manage the system. It also provides exact data to the government over salaries paid by all bodies. COP became fully operational in 2018, with 2 122 registered institutions as COP beneficiaries.

Activities are currently ongoing regarding the NRRP project 'Improvement of the salary system in State administration and public services' (C2.2.R2-I1). The goal of the project is to set up a fair, transparent, consistent, motivating and financially sustainable salary system in the State administration and public services, as well as a standardised, digitalised and user-oriented Human Resources Management System.

Patient Portal

The Ministry of Health put in place a Patient Portal (Health Portal), i.e. an electronic health record available to patients for managing and keeping track of their personal medical and health-related data. Since 2021 and 2022, the same access has been provided through the Health Portal mobile app, which is available for both Android and iOS platforms.

The Portal offers Croatian citizens access to the central eHealth records data and is among the top seven eCitizen services. It is accessible via authorised access using the NIAS. The patients are able to see all the prescribed and dispensed medications from primary care, laboratory results from biochemistry labs within the public primary care network, medical reports from visits to general practitioner (GP) practices, consultation notes and referrals from hospitals and outpatient facilities (noteworthy, however, the latter is not a fully comprehensive documentation set, nor does it include historical records prior to the system going live), and bookings done with specialised services in hospital care. The system is almost fully read-only, with interactive functions like messaging between patients and their GPs as well as selected dentists and gynaecologists, as well as requesting ePrescriptions for chronical conditions.

Importantly, the system allows for each individual to manage the access rights to their clinical data for other authorised users within primary care, using the Opt-In method. Using the settings dashboard, patients can grant access to their selected dentist, emergency services, specialists in the outpatient settings and pharmacists. They can also authorise the cross-border sharing of information with EU Member States, as part of the Patient Cross-Border Rights Directive (2011/24/EU).

In 2021, additional COVID-19 related functionalities were added to access and review patient data on all COVID-19 vaccinations and tests, and to allow scheduling the slot for vaccination (1st dose, 2nd dose, boosters) against COVID-19 by selecting the desired location and date of vaccination.

Activities are currently ongoing under the NRRP project 'Consolidation of the CEZIH health information infrastructure system'. The CEZIH health information infrastructure system is intended for all stakeholders of the health system: hospitals, general family medicine, paediatrics, gynaecology, dentistry, school medicine, public health institutions, the Ministry of Health, the Croatian Institute for Health Insurance, pharmacies and laboratories. The system should be available 24 hours a day, 7 days a week. This investment aims to achieve the following goals:

- Enabling continuous, reliable and secure operation of the central health information system;
- Establishing primary and secondary locations for infrastructure while meeting TIER 3 reliability and availability standards; and
- Securing data (backup) and monitoring the operation of the system.

Central Catalogue of Official Documents of the Republic of Croatia

The CSODDS is responsible for managing the Central Catalogue of Official Documents of the Republic of Croatia, a tool available to the public providing permanent access to the documents published by the national administration. Such catalogue enables citizens to exercise their right of access to digital information.

A project for improving the Central Catalogue named 'Establishment of an integrated management system for official documents of the Republic of Croatia' is currently ongoing, co-financed by the EU. It will build a system for collecting, processing and publishing textual data using data-driven applications of AI. In 2022, the semantic search engine, as well as all related search engine modules, were fully developed. The project implementation deadline is July 2023.

4.1.2 Subnational Platforms and Applications

Open City Platform

A number of cities (Dubrovnik, Bjelovar, Dugo Selo, Osijek, Zlatar, Pazin, Trogir, Vrgorac, Novalja and Crikvenica, among others) are using an Open City Platform, i.e. a web platform that provides citizens with a number of eServices related to information on or communication with city services, as well as insight into the functioning of the city. The platform is integrated into the NIAS and, as a result, citizens can access it via the 27 credentials available on the NIAS.

4.2 Networks

HITRONet and CARNET

HITRONet was established following the decision of the government of the Republic of Croatia on the establishment and provision of common services of computer and communication network for State administration bodies in 2007. Currently, 506 public bodies are connected through the HITRONet infrastructure. The network is regularly maintained and monitored based on its traffic load. This network provides access to the internet and secure interconnection of the involved institutions. It also enables the institutions of the Republic of Croatia to join EU-wide services provided through the latest generation of TESTAng networks as a common network of EU Member States. Through the HITRONet network, Croatian bodies use over 17 different services provided by the European Commission to Member States.

In addition to locations connected via HITRONet, some sites of public law bodies are connected to the CARNET network. CARNET is under the responsibility of the Ministry of Science and Education. It is a private network of the Croatian academic and scientific research community, and institutions from the elementary and secondary education system. The CARNET facility owns part of the network infrastructure and mainly leases lines from a range of telecommunications providers.

Activities are currently ongoing under the NRRP project 'Investments in State information infrastructure networks'. To improve the operation of the network used by public bodies in Croatia, a new network architecture will be designed that will meet the needs emerging in the coming period, the existing equipment will be upgraded and the capacities of telecommunication links between network nodes will be increased. All bodies will be provided with broadband access to a high-capacity network (10 Gbps). The goals of this investment are:

- Establishing a secure network infrastructure at existing and new locations where institutions provide services to citizens and/or business entities;
- Ensuring network capacities appropriate to the needs of the modern information society; and
- Increasing the security of the entire State Information Infrastructure.

eBulletin Board and Court Networking Project

The eBulletin Board and Court Networking Project was initiated to develop a single intranet and internet network for judicial bodies, which will create the prerequisites for the exchange of documents and information within the judiciary.

The eBulletin Board is a free and public service that enables the overview of electronic bulletin boards of courts and other competent authorities in the Republic of Croatia. The central search engine enables to look for published decisions and other documents of municipal, county, commercial and administrative courts in the Republic of Croatia, as well as the enforcement proceedings of FINA and public notaries. All notifications by the competent authorities are published without delay and automatically removed upon expiry.

The Ministry of Justice and Administration, as the highest judicial administration body, provides the technical preconditions for the information system described. All recorded information is within the jurisdiction of the courts in which the proceedings are conducted.

Broadband Infrastructure

In order to achieve the full potential of digital transformation, the Republic of Croatia has provided significant resources for the promotion of broadband infrastructure. With the aim of removing the existing barriers to investing in the mobile network market and enabling the increase of the investment potential of public mobile network operators, the Republic of Croatia has abolished one-off fees for the use of the radio frequency spectrum for public mobile networks. Furthermore, the annual fee for the use of the radio frequency spectrum (1900 MHz - 1920 MHz) has also been abolished, thus opening up the possibility of new market investments and competitiveness. Also, A mechanism has been introduced by virtue of which an equal annual fee for the use of the unused radio frequency spectrum will apply to all operators of public mobile networks in the Republic of Croatia.

One of the key projects in the area of connectivity is the National Framework Programme for the Development of Broadband Infrastructure in areas where there is insufficient commercial interest to invest, managed by the Croatian Regulatory Authority for Network Industries (HAKOM). The

aim of this framework programme is to develop the Next Generation Access (NGA) Broadband Infrastructure in areas where there is insufficient commercial interest for operators and market providers to invest. The programme is a national framework scheme, which follows a number of individual projects in a narrower local area. Individual projects are managed by public authorities at local and/or regional level (municipalities, cities and counties) as individual project promoters. Another key project is the National Broadband Aggregation Infrastructure Development Programme in areas where there is insufficient commercial interest to invest (NP–BBI). The NP-BBI Programme is focused on building the Next Generation Network (NGN) Broadband Infrastructure and is complementary to the National Framework Programme. The programme's feasibility study is currently in the approval phase by JASPERS. The design and construction activities are expected to last until the end of 2023.

Development of the 5G Network

Croatia is one of the first EU countries which have tested the 5G network. The planned start of operation of the first 5G commercial networks was foreseen for 2020. At present, the IoT technology is also available in Croatia and is used in intelligent smart cities solutions (for example, smart parking). In this context, Ericsson Nikola Tesla opened a research and development centre in Osijek, where experts will be engaged in the development of the new 5G technology.

With the purpose of recognising the challenges and constraints of introducing the 5G network in Croatia, HAKOM has set up a working group with electronic communications operators. The working group has the task of articulating the challenges regarding the introduction of 5G technology, as well as the involvement of all public and private stakeholders that can contribute to successfully carrying out the 5G action plan.

Within the NDS, digitalisation is one of the key items and this area is addressed by a special technical working group for the digital society. The working group encourages the introduction of 5G networks through various measures and activities. This is also part of the new draft proposal for a Law on Electronic Communications transposing Directive (EU) 2018/1972 establishing the European Electronic Communications Code (EECC), which is currently being prepared.

The National Plan for the Development of Broadband Internet Access in the Republic of Croatia 2021–2027 (OJ 26/2021) was adopted in March 2021 and has as one of the goals the introduction of 5G networks in accordance with the EECC, the 5G Action Plan of the European Commission and the European Commission Communication entitled 'Towards a European Gigabit Society'. This goal includes the introduction of 5G networks for urban areas and major land routes, as well as the introduction of 5G networks for rural areas.

As of January 2022, commercial 5G was available in all 27 EU Member States. The Hrvatski Telekom's 5G network is based on the use of the Dynamic Spectrum Sharing (DSS) technology to make use of the 2100 MHz band, and the newly acquired 700 MHz and 3600 MHz bands. Its 5G network currently covers 45 Croatian cities and a population of 1.7 million.

4.3 Data Exchange

Shared Services Centre

The national Shared Services Centre (SSC), i.e. the State cloud, is one of the key projects that will integrate the State information infrastructure, and enable the sharing of ICT and the same horizontal application solutions. All public sector bodies will be able to use shared, reliable and scalable ICT infrastructure according to the cloud paradigm. Through the SSC, the State will gain faster access to the latest technologies that are the basis for providing more digital public administration services in the most efficient way and in the shortest possible time.

The project will result in the consolidation of the State information infrastructure, based on the principles of the shared services model. Moreover, it will aim at the implementation of an infrastructure for an interconnectivity and interoperability platform that will include key enablers required for the Metaregister, the GSB, the distributed eServices architecture and State platforms. The development of shared services will also be pursued.

The Shared Services Centre was officially launched on 25 November 2019. The project received a grant of HRK 306 644 668.87 from the European Regional Development Fund (ERDF) through the 2014–2020 Operational Programme 'Competitiveness and Cohesion'. The total project value is HRK 360 758 433.97 and the project will last until 31 December 2023.

During 2022, an additional 150 users (institutions) were integrated in the SSC. As a result, at the end of 2022 the SSC had a total of 383 users, which is over the needed KPI for the project.

In the NRRP, further development of new functionalities of the SSC is planned trough the project 'Further development of the Shared Services Centre'. A goal was set to expand the cloud with 450 new users (institutions) by 2026. The project also envisages the establishment of six new functionalities/services: (i) Platform as a Service (PaaS), for establishing the development/implementation environment; (ii) the Central Information Security Monitoring System (SIEM); (iii) a platform for the contact centre for the reporting of ICT tickets; (iv) a platform for biometric authentication; (v) a platform for content managing; and (vi) a platform for blockchain.

Government Service Bus

The development of the Central Interoperability System is part of establishing the SSC. The GSB, as a main component of the Central Interoperability System, enables safe and secure data exchange among services and registers. SSC service users are able to announce the GSB interface in two ways: (i) putting an interface directly into the GSB network and announce the application programming interface (API) in the GSB API catalogue to enable that interface to be reused by other SSC platforms; and (ii) developing an interface on the GSB platform to enable further orchestration and data manipulation.

The process of integrating public registers in the GSB started to develop a complex electronic registration and enrolment eService in educational institutions. This project envisages the integration of eight registers (veterans, birth, residence, etc.) through the GSB. The process includes the publication of the application service (API) on the GSB and the use of this application service in order to retrieve data from public registers.

The second eService that is important in this context is eRenovation, i.e. a digital system that enables the submission of requests for renovation attaching all necessary documentation, monitors the implementation of the renovation procedure, displays renewal data on the Geoportal and provides reports according to various criteria.

In 2022, 17 new institutions were integrated in the GSB presenting (exposing) 15 registers and records to the GSB to ensure secure data exchange between State bodies and institutions. As a result, registers in the GSB production environment now total 38. In 2022, 110 new institutions retrieving data for their business processes were also integrated into the GSB. In total, 123 bodies now obtain data through the GSB, i.e. ten times more than in 2021. Also, a total of 71 web services/APIs were integrated for data download in the same year. Web services now amount to 110 in total, with an increase of almost three times compared to 2021. Finally, in 2022 a total of 7 113 855 inquiry messages were sent through the GSB and an equal number of responses were delivered to institutions for the completion of business processes (production environment), which makes data exchange ten times higher than in 2021.

The projects eEnrolment, eTourism, eRenovation, and Asset Records for the State Attorney's Council and for the State Judicial Council are the biggest beneficiaries of the integration of registers at the GSB level.

Improving the System of Electronic Services

The project 'Improving the system of electronic services', aimed at defining the standard for the development of new eServices and continuous digitalisation of public administration operations, was completed in February 2021. As a result of the project, in April 2021 the government of the Republic of Croatia adopted the Conclusion on the Standard for the Development of Public eServices in the Republic of Croatia.

Implementation of the eStandard and Further Improvement of Electronic Services System

As a logical extension of the project 'Improving the system of electronic services', in August 2021 a new project called 'Implementation of the eStandard and further improvement of the electronic services system' was started with an implementation period of 24 months. It aims to implement the standard through the establishment of appropriate tools and process digitalisation.

The project will establish an information system that will support all processes defined within the eStandard to ensure a clear picture of the development status of eServices. It will enable all stakeholders to monitor in one central repository the development status of each eService, as well as the availability of all documents and artifacts that are created through eServices development projects.

A portal with all important information on the development of eServices will be established, standardised user interfaces (graphic design) will be developed as building blocks for the development of eServices, and rules and guidelines for developing graphic interfaces will be adopted. Also, life situations will be analysed and their register created. Based on the latter, the priorities and the needs of citizens and business entities will be defined in order to develop or improve eServices that target those needs.

National Spatial Data Infrastructure

For centuries spatial data have been interpreted and visualised on analogue maps, which until recently were the main tool for the perception, understanding and orientation of objects and events in space. The appearance and development of Geographic Information Systems (GIS), however, have opened up new possibilities of managing spatial data and their characteristics. Standardised data can be more easily exploited by users in order to promote a faster and more efficient regional economic development. In addition, the financial savings that can be achieved in the process place new demands on spatial data. Thus, in order to speed up development in this field, Europe has launched the INSPIRE initiative, linking together the national spatial data infrastructures. The Croatian National Spatial Data Infrastructure (NSDI) is defined as a set of technologies, measures, standards, implementation rules, services, human resources and other factors enabling efficient integration, management and maintenance of the sharing of spatial data. It gives the possibility to discover, view and use spatial data to government bodies, businesses, non-commercial and public sector entities, the academic community and citizens in general. The NSDI will be an integral part of the European Spatial Data Infrastructure defined by the INSPIRE Directive. It will have to be harmonised with the development of spatial data infrastructures at the European (INSPIRE) and global (GSDI, UN-GGIM) level. Moreover, the infrastructure at national level will also need to influence the development of spatial data infrastructures at the local level.

The Spatial Planning Information System (ISPU) is a State interoperable and multi-platform system for input, verification, publication and exchange of spatial data for the purposes of creating, adopting, implementing and monitoring spatial plans, as well as permanently monitoring the situation in the space and in the area of spatial planning. The ISPU is organised as a system of independent functional units - modules for entering and verifying data.
On 7 November 2019 the Ministry of Spatial Planning, Construction and State Property signed the Agreement on the allocation of grants for projects financed from the European Structural and Investment Funds in the financial period 2014–2020 for the purpose of implementing the project entitled 'Spatial Planning Information System (ISPU) and its modules'. The implementation period goes until 30 June 2023. The goal of the project is to increase the use of ICT in communication between citizens, entrepreneurs and public administration, as well as to upgrade existing and implement new complex eServices in the field of construction and spatial planning in accordance with the EIF, which will result in an increase in the productivity of the public sector in the Republic of Croatia and the transparency of the spatial planning and construction system.

START Platform

Since December 2019, entrepreneurs in Croatia can start their business in just a few days, through a new eService called START. Several existing processes and systems to start a business have been merged into a single process: registration of the company in the Court Register, registration of the craft business in the Trade Register for Crafts, entry in the Register of Business Entities, registration in the Register of Taxpayers and the VAT Register and/or assignment of a VAT number, submission of a bank account request, registration in the Croatian Pension Insurance Institute system, and electronic payment of fees and founding capital.
The NRRP, within measure C1.1.1.R1-I1 'Digitalisation of State and public administration services by business sector (G2B)', envisages activities for upgrading the accessibility of the START Platform and digitalising additional services. Activities are ongoing regarding the START Plus eService, designed as a digital platform which will provide applicants with the necessary information about the issuance of licenses needed in business. It will also enable the submission of applications for the issuance of licenses and their download in electronic form.

Digital Chamber

The Digital Chamber, a communication platform for businesses, public administration and citizens, is an output of a project of the Croatian Chamber of Economy (CCE). It represents a unique eServices communication platform that is accessible to CCE members, the business community, public administration and citizens.

Fully Electronic Service for Enrolling in Educational Institutions

One of the most complex eServices that is being developed concerns the application to and enrolment in educational institutions. The full project name is 'Informatisation of the process and establishment of a complete electronic enrolment service in educational institutions'. It will digitalise the process of application to and enrolment in early and pre-school education institutions, primary and secondary schools, student dormitories and higher education institutions, as well as the registration in the State graduation register and the national adult education information system. The main goal is to enable the citizens of the Republic of Croatia to enrol in the desired institution easily and quickly without any additional administrative burden that can be avoided by using already existing data from the basic registers of different State administration bodies.

The total project value is HRK 40 002 019.64 and the project implementation period was from 12 March 2019 to 12 March 2023. As part of the project, activities to connect registers to the GSB and enable data retrieval through the GSB were carried out. During 2022, enrolments in three modules were carried out through this system (enrolments in early and pre-school education institutions, enrolments in secondary schools and enrolments in student dormitories).

4.4 eID and Trust Services

Personal Identification Number System

The Personal Identification Number (OIB) System offers safe infrastructural and functional services to all central and public institutions in charge of natural and legal entity registration, to all institutions obliged to use the OIB for their official records, as well as to all citizens and legal entities that are able to use public web applications and SMS services to obtain information about their OIB.

eCitizen Portal

eCitizen is a portal for the interaction of State institutions with citizens through a single point of contact, and a single identification and authentication process. The NIAS, the identification and authentication system, serves as a secure and reliable identification and authentication mechanism for citizens who access public eServices through the appropriate credentials. It supports 27 different credentials for identification and authentication. Users can access all services through the NIAS using the electronic identity card, as well as other accepted credentials (e.g. eBanking tokens, etc.).

eID

Since 2018, the use of an eID has been encouraged as a high security credential that enables citizens to use all eCitizen services, as well as other electronic services in Croatia, regardless of the provider. The benefit of the eID is the ability to electronically identify the owner and create an advanced electronic signature through the NIAS that delivers a personal data set (Personal Identification Number (PIN), name, last name, etc.).

e/mSignature and e/mSeal

The e/mSignature and e/mSeal project established a platform providing eServices through which users can electronically sign and/or seal documents. To that end, the platform also supports the mechanisms needed for electronic signature and seal validation. A platform with eServices for the process of electronic and mobile signature, electronic and mobile sealing, and validation of electronic signatures or seals has thus been developed and established, and will be used in electronic public services. The services will be available through the eCitizen Portal to citizens and

businesses, and the public institutions can incorporate them into their services, offering seamless user experience. The platform has been established as a shared public administration service.

The platform contributes to increasing the efficiency of communication within the State and public administration systems, and improves the provision of eServices and the interaction with citizens and business entities that use those public services.

The project began on 20 November 2018 and ended in March 2023, with a total project value of HRK 22 465 901.38. During 2022, all activities defined in the project plan were carried out, and all modules of the platform were created and delivered. A test and production system was established on which all three electronic services provided for the project are available (electronic signing, document verification with electronic signatures and electronic signature validation). A total of 264 information systems of different institutions are integrated in the platform.

Electronic Identification Croatia

The project was completed in December 2019 and the result is that EU/EEA citizens are now able to access the following eight Croatian public eServices:

- ePermit – This service enables all applicants to submit the building permit plan online and upload their documentation. For authorised users, an online review and approval process is available;
- Real Property Registration and Cadastre Joint Information System (JIS OSS) – This system allows users to submit their Land Register extracts from the main book or books of deposited contracts for real estate rights. Digitally signed documents are created and downloaded in the OSS system upon payment of a fee;
- Registration of a company via the internet – This service enables the submission of requests and documents for registering a limited liability company via the internet. The service will provide the founders with the registration decisions and other documents in electronic form via a notice sent to an eCitizen Personal Mailbox or e-mail;
- Consent in the procedures under the jurisdiction of the Ministry of the Interior – According to the law, in the Republic of Croatia both parents must participate in the process of issuing passports or identity cards for minors. Also, both parents have to agree on the address of permanent residence of minors. This new eService offers the possibility for one parent, EU/EEA citizen, to give his/her consent to the other parent to complete the process of issuing ID documents (ID card or passport) for their child or to change the child's address of permanent residence. Another eService also offers the possibility for EU/EEA citizens who are owners or part-owners of real estate on the territory of the Republic of Croatia to give their consent to another adult person for registration of permanent residence at that address;
- eNautics – This service enables online notification of the arrival of foreign vessels or Croatian boats in Croatian territorial waters with a view to paying the safety or navigation fees, as well as the download of the electronic receipt as proof of payment;
- eSeafarer – This service enables submission of applications for boat skipper exams. Upon passing the exam, the candidate will receive a certificate of competency as a boat skipper;
- eVessels – This service is intended for owners of Croatian-flagged vessels and provides the possibility to search and view data from the Register of Ships; and
- Electronic Public Procurement System of the Republic of Croatia (EOJN RH/EPPS) – The system is a platform for conducting public procurement procedures in accordance with the Law on Public Procurement and announcing procedures in accordance with the Law on Concessions.

4.5 eProcurement

Electronic Public Procurement Classifieds

The Electronic Public Procurement Classifieds (EPPC) is the national eProcurement platform and is managed by the Official Journal (*Narodne Novine d.d.*). The publication on the platform of tenders above the threshold of EUR 25 000 for goods and services, and EUR 67 500 for works is mandatory. The contracting authority must publish an invitation to tender on the standard forms used for this purpose. An eNotification service is available during the eProcurement pre-award process, and the eSubmission module is available and obligatory pursuant to the Law on Public Procurement, thus all bids need to be submitted via the EPPC platform.

Since December 2019, the EPPC is available through the eCitizen Portal for EU/EEA citizens (Europe.gov.hr)

eInvoicing Platform and Management Solutions

The Central Platform for the Exchange of eInvoices is a national platform for eInvoice exchange to which all intermediaries are obliged to connect (modified three-corner model of eInvoices exchange). The central platform, called *Servis eRačun za državu*, is the access point that connects public contractors (directly), sectoral contractors (directly) and information intermediaries with their clients/users. This model allows:

- The connection of all participants using only one connection point (connection with the access point), which saves significant resources needed for integrations;
- The standardisation of the exchange protocol because all participants make a single connection to the access point;
- A unique record of all participants (register) with easy switch of sectoral contractors from one information intermediary to another; and
- A record and a single statistical analysis of all received messages/invoices, regardless of which information intermediary a sectoral contractor has chosen, which is a powerful tool for overseeing irregularities.

No bilateral contractual relations or agreements need to be established between all parties in the system; a simple registration to *Servis eRačun za državu* is sufficient to exchange eInvoices with other registered users. The platform is operated by FINA, a State-owned service provider under the supervision of the Ministry of Economy, Entrepreneurship and Crafts.

Activities are currently ongoing under the NRRP project 'Implementation of a cashless payment system through eInvoice with integrated eArchive and active tax accounting' (C2.3. R3-I14). The main goal of the project is to implement a system for cashless payment via eInvoice with integrated eArchive and advanced online bookkeeping in the VAT system. Within the scope of the project, the following is planned: (i) establishment of a system for reporting non-cash accounts that are issued in the B2G segment to the Tax Administration; (ii) implementation of a cashless payment system via an electronic account (eAccount) in the B2B segment with an integrated eArchive, and active, unique and advanced online bookkeeping in the VAT system; and (iii) establishment of a free application for issuing eInvoices that will be made available to small taxpayers (for whom the costs of introduction would be disproportionate to its benefits).

4.6 ePayment

eFee Project

The Ministry of Labour and the Pension System, acting as the Operational Programme manager for the 'Effective Human Resources' Operational Programme, announced the call for proposals for the eFee project, to be financed by a non-refundable direct contribution of the European Social Fund under priority axis 4 'Good Governance' (UP.04.1.1.14). The Ministry of Public Administration was one of the winners and signed the grant agreement in the amount of HRK 50 523 857.45, of which up to 85% co-financed by the European Social Fund. The project beneficiary was the CSODDS. The project implementation period was from 26 September 2018 to 26 December 2022. The successful implementation of this project established the central eFee System as a common shared service within the State information infrastructure for the electronic payment of fees and charges in procedures for which such payment is prescribed. The system enables non-cash card payment of administrative and other types of fees and charges for users of public eServices provided through the eCitizen system and the eBusiness platform. It also allows payment through a POS device at the point of service provision, i.e. at the counters of public bodies.

The project fully achieved the three KPIs, in such a way that the SeP system includes more than 20 services/eServices, as well as six public bodies that provide such services, for which 600 employees were trained in using and connecting to the eFee system.

In 2021, the new Decree on the Tariff of Administrative Fees reduced the number of services for which fees are charged from 215 to 45. In any case, during the implementation of the project, 215 different services under the jurisdiction of ten State bodies were integrated in the eFee system.

4.7 Knowledge Management

Central State Office for the Development of the Digital Society

Following the Law on the Organisation and Scope of Ministries and Other Central Government Bodies, which entered into force in November 2016, the Digital Information Documentation Office became a part of the CSODDS. The former Digital Information Documentation Office was the official government service for the dissemination of information, documentation and referral. It provided a central information and documentation portal for public official information and documents.

Higher Education Institutions Information System - Undergraduate Studies

The Higher Education Institutions Information System - Undergraduate Studies (ISVU) is a network-oriented system intended for the informatisation of all student services at higher education institutions that offer graduate education. It offers access via the internet, regardless of user data and location, and serves as a powerful integration solution at tertiary level through the creation of a data warehouse. The Ministry of Science and Education provides funding for the development and the daily operations of the ISVU and monitors the system performance.

EUROVOC Thesaurus

EuroVoc is a multilingual, multidisciplinary thesaurus covering the activities of the EU in general, and the European Parliament in particular. It contains over 6 600 structurally organised and controlled terms (descriptors) in 22 EU languages, including Croatian.
The Croatian equivalent (*CROVOC*) has been translated by the Digital Information Documentation Office for subject indexing of official documentation in the Republic of Croatia. The Digital Information Documentation Office and the Library of the Croatian Parliament have also developed a Croatian Addendum, which includes:
- A glossary of the names of Croatian government bodies, political parties and geographic terms, accompanied by the special designation *CROVOC* added to the end of the hierarchical structure of the thesaurus as a separate field; and
- Descriptors incorporated into the structure of the original, accompanied by the special designation *CROVOC*.

Croatian National Educational Standard

The Croatian National Educational Standard (CNES) was created to foster change in the teaching programme and work methods of the elementary school system, in order to develop schools tailored to pupils. The purpose of the CNES is to reduce the workload by abandoning redundant educational programmes, and to introduce modern teaching methods based on research-based classes, and individual and group work, as well as applicable knowledge and skills.

Project for the Establishment of Integrated Systems for the Management of Official Documents

The Project for the Establishment of Integrated Systems for the Management Official Documents is carried out by the CSODDS. Its aim is to ensure a higher level of openness, transparency and availability of official documents through permanent availability, as well as the possibility to reuse public official documents and information for all interested parties under equal conditions, impartially and free of charge. The implementation of the project includes the establishment of an integrated system to manage the official documentation of the Republic of Croatia, the availability of documents to end users, the development of the search engine Cadial and better awareness of civil servants' legal obligations under the Law on the Right to Access to Information. The project is directly funded under priority axis 4 'Good Governance', specific goal 11.i.1 'Increasing Effectiveness and Capacity in Public Administration through Improved Service Provision and Human Resources Management', of the 2014–2020 Operational Programme 'Effective Human Resources'.

Project for Process Informatisation and Establishment of an Integral Electronic Service for Admission in Education Institutions

The Project for Process Informatisation and Establishment of an Integral Electronic Service for Admission in Education Institutions was prepared in collaboration with the Ministry of Labour and the Pension System for the purpose of applying for co-financing under the European Social Fund within the 2014–2020 Operational Programme 'Effective Human Resources'.

The goal of the project is to digitalise processes in educational institutions and enable Croatian citizens to enrol in programmes that these institutions offer through eServices, entirely without the need to fill out forms. The data required for admission in education institutions will be obtained electronically from the bodies responsible for these data, in accordance with the provisions of the Law on the State Information Infrastructure.

The service will digitalise the processes of application to and enrolment in institutions of early and pre-school education, primary schools, secondary schools, student dormitories and higher education institutions, as well as the registration in the State graduation register and the national adult education information system.

During 2022, enrolments in three modules were carried out through this system (enrolments in early and pre-school education institutions, enrolments in secondary schools and enrolments in student dormitories). The project implementation period is from 12 March 2019 to 12 March 2023, with a total project value of HRK 40 002 019.64.

4.8 Cross-border Infrastructures

Cooperation Network

The Republic of Croatia is one of the 15 Member States of the EU that have registered an electronic identity card (eOI) and a national identification and authentication system (NIAS). The latter enables cross-border electronic identification when using public services in the EU. This provides a tool for the recognition of electronic identities of Croatian citizens to access online cross-border public services in the EU. In this way, all the prerequisites for Croatian citizens to log in to public eServices in other Member States using the eOI are fulfilled. At the same time, some EU citizens (from countries which have completed the notification process) can access the eServices of the Croatian administration.

By 31 December 2022, the Republic of Croatia was fully connected with 22 Member States and had test-connected with three additional Member States. Depending on the status of the notifications of the above-mentioned countries, the mutual use of eServices by their and Croatian citizens will be initiated. Of course, it is up to each Member State to prepare its eServices for cross-border use.

4.9 Base Registries

Metaregister

The Metaregister is a public register which is part of the Central Interoperability System (SII) and serves to provide the information needed to connect and manage public registers. It was established in March 2015 and is published on the website of the CSODDS. It contains detailed information on public registers and the data they hold, and communicates this to users through a single point. In this way, it provides an overview of the structured public registers, the type of data that is collected and hosted, as well as how to connect with other systems.

The Metaregister is a prerequisite for a country aiming for a paperless administration and the implementation of the Once-Only principle. A paperless State creates a single administrative location with connected registration systems to ensure the availability of data. This relieves the administrative burden on citizens, who do not have to transfer documents between different institutions themselves.

At the beginning of 2021, the development of the Technical Specification for the new Metaregister platform began. The basic functionalities were taken from the existing versions of the Metaregister, and new functionalities were released to the test environment in April 2021. The new Metaregister platform aims to become a key component of the future Central Interoperability Portal.

Shared Services Centre

According to the applicable decree, the SSC is an organisational business model for providing shared services to public sector bodies and other users, consisting of a normative framework and a governance structure in accordance with the regulation and the acts adopted pursuant to the decree. The SSC provides common business solutions and common ICT services, and its establishment, extension, maintenance and management is within the competence of the central State administration body responsible for eCroatia affairs.

The SSC aims to increase the use of ICT in communication between citizens and public administration through the establishment of an ICT coordination and software solution. The expected outcome is to increase the use of eGovernment services by citizens, which is assessed in terms of the frequency of use of eGovernment services by individuals, and to increase the number of residents communicating with public institutions. Specific results to be achieved include the functioning of the State cloud and the strengthening of the use of eServices in specific sectors defined in the digital strategy, i.e. the increase in the percentage of public institutions integrated in the cloud and the number of complex eServices provided to users.

Cadastral and Land Register Data Browser

The Cadastral and Land Register Data Browser provides insight into the central cadastral and land register database of Croatia, which incorporates all cadastral and land register offices.

The Croatian system of registering real properties and associated titles has several objectives. The most important include the introduction of security in real property legal transactions and the protection of titles registered in the registers. The system is based on two registers, namely the Cadastral Register and the Land Register.

The Cadastral Register includes records containing data on land parcels and buildings permanently present on the land or beneath its surface, as well as the special legal status on the land surface. The cadastral records are kept by the State Geodetic Administration regional cadastral offices and the Zagreb City Office for Cadastre and Geodetic Works.

Land Registers are public registers where data on legal real property status of merit for legal transactions are recorded. Each Land Register consists of the main register and a collection of deeds. Land Registers are kept by the Land Register Offices of municipal courts.

Through the Ministry of Justice and the State Geodetic Administration, the Croatian government initiated in 2003 the Real Property Registration and Cadastre National Programme, abbreviated as 'Organized Land', under which the JIS OSS was developed. The establishment of the system has led to the creation of a unified register for the cadastral and land registers in which the systems are interlinked and exchange real property data. In simplified terms, a unified database and application bringing numerous benefits to the users have been established to keep and maintain the cadastral and land register data. Apart from the time needed to access the data and make a registration being significantly reduced, citizens are today able to see at one place the

ownership structure of a real property and its location in space, as well as to use numerous other functionalities.

eCourt Register

The eCourt Register contains all existing entities, including trading companies, co-ops and institutions. Through automation of certain administrative and accounting judicial operations, and access to criminal and minor offence records, it enables simpler registration of business entities (full online company registration) and simpler access to Court Register data.

eCREW

The eCREW system enables all legal and natural entities who rent yachts and boats to register their crew and passengers via the internet, prior to putting out to sea, using smart cards with a digital certificate based on acquired user rights. The aim is to expedite business processes at the Ministry of Maritime Affairs, Transport and Infrastructure with business subjects (charter companies) relating to charter vessels, to secure a complete monitoring over the procedure of renting vessels by all authorised bodies of the State administration, and, in that way, to prevent illegal chartering.

Central Database Register on Personal Data

Register offices in the country keep national records in the Registers of Births, Marriages and Deaths. Data on the citizens' personal status is entered into local databases and replicated into the Central Database Register on Personal Data at the Ministry of Justice and Administration.

Personal Identification Number Register

Personal identification numbers are given to natural and legal persons. The Personal Identification Number (OIB/PIN) Register receives updates on natural persons from the Register of Births, Marriages and Deaths, and about legal persons from the (eight) registers of non-profit institutions as well as from the Court Register. The data exchanged gives a clear indication of changes in the life events and status of Croatia's citizens. This information is then shared (upon request or by submitting a notification) with other relevant registers, such as the Pension Register or the Tax Administration Register. All relevant government bodies involved in the implementation of the OIB/PIN project update their information systems whenever necessary to include processes related to the OIB/PIN. The Tax Administration (which also performs the duties of a Tax Register), Land and Commercial Registers are centralised by default.

HITRONet

HITRONet is the communication system that represents the backbone of the public administration network. By linking public authorities at national level, it is the core of a comprehensive communications system, which fulfils the needs associated to eGovernment and is also an indispensable infrastructure for its further development. Access to the network is enabled by a virtual private network model through an internet communication environment. In addition, HITRONet is connected to the Secured Trans-European Services for Telematics between Administrations (sTESTA) network, a separate EU network which is Croatia's point of connection to the EU.

Central Register of State Property

The Central Register of State Property is a comprehensive and complete, methodologically standardised, and updated record of State property. Its goal is to develop a system that will ensure quality record-keeping of State property, based on prescribed regulations and key documents of the Republic of Croatia. It will enable the establishment of complete and systematised records of all forms of property owned by the Republic of Croatia.
The project 'Improving the system of registration and management of State property' is an ongoing project with the goal of upgrading the existing State Property Management Information System with new functionalities and also building a new reporting system.

4.10 Innovative Technologies

4.10.1 Artificial Intelligence (AI)

Centre for Artificial Intelligence

Regarding the development of AI, the Centre for Artificial Intelligence (CAI) was established in October 2019 and is the largest research centre in the field of AI in Croatia, bringing together more than 100 researchers (faculty and doctoral students) from 18 research laboratories at the Department of Electrical Engineering and Computing, University of Zagreb, Croatia. The CAI has three primary goals. The first one is to advance the theoretical foundations of AI and to make progress in areas related to AI, such as machine learning, deep learning, natural language processing, computer vision, financial analytics, robotics, the IoT, bioinformatics, cybersecurity and referral systems. The second objective is to collaborate with industry through the transfer of AI technology to develop new innovative knowledge-based products and services. The third goal is to provide cutting-edge AI education at the undergraduate, graduate and doctoral levels, as well as to continue education for the industry.

4.10.2 Distributed Ledger Technologies

new Blockchain Platform

The implementation of the Blockchain Platform began in 2022 within the Croatian NRRP project 'C2.3.R3-I1 Upgrading of the Shared Services Centre'. The total cost of implementation is estimated at HRK 11 558 884 and the deadline for completion is 2025.
A service for joining public or private networks will be established using open-source blockchain solutions. The Distributed Ledger Technology (DLT) platform for the development of applications will be established on the SSC infrastructure in accordance with the recommendations of the European Blockchain Services Infrastructure (EBSI). The CDU blockchain service enables the selection of the blockchain framework, including members in the network, the selection of nodes and the deployment of applications that will be created for the needs of business processes in institutions. This platform will be integrated into the Croatian interoperability system and will enable connection to EBSI projects planned by the EU as well as incentives for investments and projects in this segment - Digital Identity, Digital Post, Digital Diploma, Digital Notary and Trusted Data Sharing.
At the end of 2021, the RBI started the initiative of establishing the Croatian node of the EBSI network.

4.10.3 Big Data

Establishment of a Central Data Lake Repository and Business Intelligence System Project

The project 'Establishment of a central data lake repository and business intelligence system' is carried out under the NRRP measure C2.3.R2 'Digital transformation of society and public administration'. Its aim is to introduce a data storage system together with its attributes and, based on this data, to design different data warehouses as an ecosystem that will enable an analytical organisational culture as a source of reliable summary data necessary for the decision-making process. The platform will be divided into two segments:
1. a data warehouse intended for State administration bodies where advanced analytics would be carried out with the aim of a more efficient decision-making; and
2. an open data warehouse, with implemented analytical tools and elements of AI, available to the private and public sectors for the development of new innovative services.

4.10.4　Cloud Computing

Croatian Scientific and Educational Cloud

The Croatian Scientific and Educational Cloud (HR-ZOO) project is ongoing, with the objective of building a distributed national eInfrastructure consisting of computing, storage and network resources for the purpose of building the research, development and innovation (RDI) capacity of the Croatian scientific and academic community. The total value of the project is EUR 25 895 058 (with EU co-financing for EUR 22 010 799) over a timeframe spanning from July 2017 until the second quarter of 2023.

HR-ZOO is recognised as an important prerequisite for the development of the Croatian research and higher education area, as well as a common infrastructure for the needs of modern science and education, and internationally relevant research, but also as an instrument of integration into the European Research Area (ERA) and the European Higher Education Area (EHEA).

The University Computing Centre (SRCE) coordinates the project. Other key institutions from the science and education sectors are also involved, such as the Josip Juraj Strossmayer University of Osijek, the University of Rijeka, the University of Split, the University of Zagreb, CARNET and the RBI.

4.10.5　Internet of Things (IoT)

No particular infrastructure in this field has been reported to date.

4.10.6　High-performance Computing

Quantum Communication Technologies

CARNET is currently preparing a project focused on the deployment of an advanced national quantum system, as well as of a network for testing quantum communication technologies and integrating them with existing communication networks. The quantum system/network will also be used for developing and testing use cases. The project will be financed under the Digital Europe Programme.

`new` #### EuroHPC Phase 2

In January 2023, the National Competence Centres project started in the framework of EuroHPC Phase 2 (EuroCC 2). Its mission is to continue the establishment of a network of national Competence Centres in the most efficient way, while continuing to address the differences in the maturity of HPC deployment in Europe, for which improvement has already been noted. Therefore, in addition to high-level management to monitor progress in the development of the national Competence Centres, the main task is to support national Competence Centres in setting up their individual operational frameworks, while accessing and making the most of the experience and expertise currently available at national and European level. The main goal is to drive collaboration, exchange of best practices and knowledge at the European level, and to accelerate the improvement of national and thus European capabilities.

4.10.7　High-speed Broadband Connectivity

No particular infrastructure in this field has been reported to date.

4.10.8　GovTech

No particular infrastructure in this field has been reported to date.

5 Digital Public Administration Governance

5 Digital Public Administration Governance

For more details on Croatia's responsible bodies for digital policy and interoperability, its main actors, as well as relevant digital initiatives, please visit the NIFO collection on Joinup.

5.1 National

new National Council for Digital Transformation

On 23 February 2023, the government of the Republic of Croatia adopted a Decision to Establish a National Council for Digital Transformation (22/2023). The Council is composed of high-ranking representatives of State administration bodies and other relevant public institutions, representatives of local government and representatives of academia.
In addition to monitoring the implementation of the guidelines for the digital transformation of the Republic of Croatia in accordance with the Strategy for Digital Croatia 2032, the tasks of the Council are the following: (i) monitoring the implementation of the strategic goals of the Strategy for Digital Croatia 2032; (ii) proposing measures and activities to achieve the strategic goals of digital transformation; (iii) monitoring the effect of the implementation of digital transformation measures on the overall development of society; (iv) monitoring the measures and activities in the framework of digital policies at the level of the EU and in third countries; (v) making recommendations for harmonising digital policies and departmental priorities in the field of digitisation; (vi) encouraging interdepartmental cooperation, and cooperation with local and regional self-government units in the implementation of measures and activities; (vii) encouraging professional research in the field of digital transformation; (viii) providing recommendations for legal solutions for the implementation of digital transformation; and (ix) other tasks related to the improvement of digital transformation.
Furthermore, special tasks related to the State information infrastructure are: (i) providing recommendations for determining the criteria for data storage in data centres; (ii) approving the Annual Plan of Work, Development and Integration of Shared Services, and accepting the price list of services and the catalogue of services of the SSC; (iii) approving technical standards and the method of connection to the components of the central interoperability system; and (iv) giving an opinion for the approval of State information infrastructure projects.
The administrative and organisational tasks of the Council are performed by the CSODDS. For the operational implementation of tasks, the Council establishes working groups.

Central State Office for the Development of the Digital Society

According to the Act on the Organisation and Jurisdiction of State Administration Bodies (OJ 85/20), which entered into force on 23 July 2020, the Directorate for eCroatia, as part of the Ministry of Public Administration, became a part of the CSODDS. The latter has taken over the responsibility to lead and steer the digital government agenda in Croatia, including tasks originally within the scope of the Ministry of Public Administration related to: i) the development of the State administration information system; ii) the establishment of the technological and security information infrastructure in State administration bodies; iii) the connection of State administration information systems through a single information and communication network; iv) the monitoring and coordination of projects in the field of ICT in State administration bodies; v) participation in the adoption and monitoring of the implementation of laws and other regulations in the field of application of ICT in public administration and electronic administration systems.

Furthermore, the CSODDS (i) manages information and communication systems based on data interoperability, as well as exchange and sharing from basic and public registers, and ensures the preconditions for their interoperability; (ii) performs tasks in order to achieve the conditions for information and reuse of documents and information; (iii) prepares the Central Catalogue of Official Documents of the Republic of Croatia in digital form on the basis of a special law governing access rights to information; and (iv) prepares information and content for the central State portal.

Finally, it (i) manages the digitalisation process of all State and public administration bodies; (ii) coordinates the policies and objectives of the digitalisation process with the competent authorities; and (iii) coordinates and participates in the preparation of strategically important

objectives of the digitalisation process, while monitoring their implementation. Also, it (i) defines the guidelines and methodology for monitoring progress and assessing the impact of policies for the development of the digital society; (ii) develops and proposes to the government the adoption of the Digital Development Strategy; and (iii) provides professional and administrative support to the Council for the State Information Infrastructure.

In fulfilling its mandate, the CSODDS closely cooperates with other essential partners in the digital government sector of Croatia. These include primarily the Ministry of Justice and Public Administration, which for almost a decade - as the Ministry of Public Administration – has had overall responsibility for developing the strategic framework and coordination of digital government and digital/ICT projects. Another relevant body is the Ministry of Regional Development and EU Funds, responsible for the formulation of Croatia's overall development planning framework and programming, and overseeing the implementation of EU funds as one of the designated managing authorities. In addition, several other important institutions and organisations involved in the implementation and coordination of digital government in the country play an important role in ensuring policy coherence, especially in the implementation of concrete digital projects and initiatives interacting with the CSODDS.

Ministry of Justice and Public Administration

The Ministry of Justice and Public Administration performs tasks related to the digitalisation of the judiciary and public administration, together with judicial and penitentiary authorities. Regarding the responsibilities and institutional structures related to digitalisation, the Ministry has established a dedicated Digitalisation of Justice and Public Administration Sector, which performs tasks associated with the digital transformation of the judiciary and public administration – key priorities of the NDS. In addition, the Sector participates in broader initiatives and partnerships related to the digital transformation of the public administration, and prepares relevant documents for the use of EU funds related to this area.

Ministry of Regional Development and EU Funds

The Ministry of Regional Development and EU Funds aims at even development of all parts of Croatia, and its mission is to ensure quality public policies to improve working and living conditions in all parts of Croatia, especially in less developed areas. The importance of the Ministry for the digital transformation stems from its key role in overall strategic planning as well as coordination of the activities related to the management of EU programmes and funds.

Ministry of Finance

The body responsible for coordinating the monitoring of the implementation of the NRRP is an organisational unit at the sector level within the Ministry of Finance. It is in charge of the preparation of the Report on the implementation of the NRRP, based on submitted reports, communications and other available sources, and has the authority to carry out audits based on which it confirms that the key stages and target values established in the NRRP have been met.

Ministry of the Sea, Transport and Infrastructure

The Ministry of the Sea, Transport and Infrastructure performs administrative services and other professional actions related to the field of electronic communications representing the basic information-communication infrastructure.

Central State Office for Public Procurement

The Central State Office for Public Procurement performs administrative and professional tasks related to central public procurement for State administration bodies, the government of Croatia and its professional services, the Croatian Parliament and the Office of the President of the Republic of Croatia. This includes determining the total need for the procurement of goods and services of central public procurement entities, and the establishment of a database related to the requirements of central public procurement entities by procurement categories. It is also responsible for coordinating activities between the subjects of central public procurement, planning the implementation of procurement procedures and applying advanced technology in the implementation of public procurement procedures.

Agency for the Protection of Personal Data

The Croatian Agency for the Protection of Personal Data carries out administrative and professional tasks regarding personal data protection. More specifically, it supervises the implementation of personal data laws and regulations, detects alleged misuse of personal data, decides on the course of action to be taken in case of violation of personal data laws and centrally registers all the official personal data in Croatia. The Agency is also the central government body tasked with implementing the technical aspects of information security for government bodies. The technical areas covered include: (i) standards for information systems security; (ii) security accreditation of information systems; (iii) management of the cryptographic material used in the exchange of classified information; and (iv) prevention and response to computer threats.

Agency for Small Business, Innovation and Investment

The Agency for Small Business, Innovation and Investment (HAMAG-BICRO) supports SME development, and promotes investment and innovation. It is an independent institution under the supervision of the Ministry of Economy and Sustainable Development. It promotes digital innovation procurement within the public sector and has pioneered the use of advanced procurement mechanisms suggested by the EU that may be applicable in the context of ICT/digital projects in the public sector.

Information Systems Security Bureau

The Information Systems Security (ISS) Bureau is the central State authority responsible for the technical areas of information security of State bodies of the Republic of Croatia, which include information security standards, security accreditation, management of cryptographic material used in the exchange of classified information, and coordination of prevention and response to computer threats to information systems' security.

Croatian Bureau of Statistics

The Croatian Bureau of Statistics (CBS) provides statistical data on economic, demographic, social, health and ecological conditions, activities and events. In addition, it fulfils the international commitments of Croatia related to the production and dissemination of official statistics.

Information Systems and Information Technology Support Agency

In the establishment of the information environment in the Republic of Croatia, the role of the Information Systems and Information Technology Support Agency (APIS IT LLC) is to (i) develop and monitor the implementation of eGovernment directives, laws and policies; (ii) support the public administration in developing its own IT strategies; (iii) develop and support a common ICT infrastructure; and (iv) promote best practices for the development of information systems, including the protection of personal data, the use of shared services and the access to the information resources of the government administration with corresponding authorisation and authentication.
Since 2019, the APIS IT LLC has been participating as a partner to the CSODDS in the establishment of the SSC, as a strategic EU project of the Croatian public administration aimed at consolidating the State's information infrastructure and creating a private public administration cloud.

Financial Agency

The Financial Agency (FINA) is a government-owned company and provider of financial and electronic services. It streamlines the information-communication infrastructure, and supports the State and public finances systems, as well as the registers and information services of the administrative, regional and local self-government bodies. FINA has also been entrusted with the development of an IT network to communicate with State administration bodies (HITRO.HR).
FINA operates through four regional operational centres (Zagreb, Split, Rijeka and Osijek) and through a network of branches and outposts, enabling nationwide access to services.

CARNET

The Croatian Academic and Research Network (CARNET) is a public institution that operates under the Ministry of Science and Education in the field of ICT and their application to education, ranging from network and internet infrastructure, through eServices, to security and user support. CARNET also provides shared services according to the Decree on Organisational and Technical Standards for Connecting to the State Information Infrastructure.

5.2 Subnational (Federal, Regional and Local)

The CSODDS, and the Ministry of Justice and Public Administration also deal with digitalisation and interoperability matters at the sub-national level.

6 Cross-border Digital Public Administration Services

6 Cross-border Digital Public Administration Services for Citizens and Businesses

Further to the information on national digital public services provided in the previous chapters, this final chapter presents an overview of the basic cross-border public services provided to citizens and businesses in other European countries. Your Europe is taken as reference, as it is the EU one-stop shop which aims to simplify the life of both citizens and businesses by avoiding unnecessary inconvenience and red tape in regard to 'life and travel', as well as 'doing business' abroad. In order to do so, Your Europe offers information on basic rights under EU law, but also on how these rights are implemented in each individual country (where information has been provided by the national authorities). Free email or telephone contact with EU assistance services, to get more personalised or detailed help and advice is also available.

Please note that, in most cases, the EU rights described in Your Europe apply to all EU member countries plus Iceland, Liechtenstein and Norway, and sometimes to Switzerland. Information on Your Europe is provided by the relevant departments of the European Commission and complemented by content provided by the authorities of every country it covers. As the website consists of two sections - one for citizens and one for businesses, both managed by DG Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) - below the main groups of services for each section are listed.

6.1 Life and Travel

For citizens, the following groups of services can be found on the website:
- Travel (e.g. Documents needed for travelling in Europe);
- Work and retirement (e.g. Unemployment and Benefits);
- Vehicles (e.g. Registration);
- Residence formalities (e.g. Elections abroad);
- Education and youth (e.g. Researchers);
- Health (e.g. Medical Treatment abroad);
- Family (e.g. Couples);
- Consumers (e.g. Shopping).

6.2 Doing Business

Regarding businesses, the groups of services on the website concern:
- Running a business (e.g. Developing a business);
- Taxation (e.g. Business tax);
- Selling in the EU (e.g. Public contracts);
- Human Resources (e.g. Employment contracts);
- Product requirements (e.g. Standards);
- Financing and Funding (e.g. Accounting);
- Dealing with Customers (e.g. Data protection).

The Digital Public Administration Factsheets

The factsheets present an overview of the state and progress of Digital Public Administration and Interoperability within European countries.

The factsheets are published on the Joinup platform, which is a joint initiative by the Directorate General for Informatics (DG DIGIT) and the Directorate General for Communications Networks, Content & Technology (DG CONNECT). This factsheet received valuable contribution from Ms. Ana Jovičić, Central State Office for Development of Digital Society.

The Digital Public Administration Factsheets are prepared for the European Commission by Wavestone

An action supported by Interoperable Europe

The ISA² Programme has evolved into Interoperable Europe - the initiative of the European Commission for a reinforced interoperability policy.

The work of the European Commission and its partners in public administrations across Europe to enhance interoperability continues at full speed despite the end of the ISA2 programme. Indeed, enhanced interoperability will be necessary to unlock the potential of data use and reuse for improved public services, to enable cross-border collaboration, and to support the sector-specific policy goals set by the Commission for the future.

Interoperable Europe will lead the process of achieving these goals and creating a reinforced interoperability policy that will work for everyone. The initiative is supported by the Digital Europe Programme.

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