

***National Roadmap for Digital Decade Policy Programme  
2030***

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# 1 ANALYSIS OF THE CURRENT STATE OF DIGITAL TRANSFORMATION

The European Commission has listed the digital transformation of society and the economy as one of the priority areas of public policy, with a view to strengthening its digital sovereignty and setting its own standards for a new digital age, instead of following others. Therefore, by Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022, the Commission established [the 2030 Digital decade Policy Programme](#), which sets an annual cooperation cycle to achieve the Union's common digital transformation targets. This governance framework is based on an annual cooperation mechanism involving the European Commission and Member States. The Commission, together with the Member States, has set out the direction of EU action towards a specific target, and States are now proposing national plans to achieve them. Therefore, Croatia has also approached the drafting of this document, the purpose of which is to define Croatian contribution and measures and cooperation with other Member States in achieving the digital goals of the European Union.

With the aim of digital transformation of society and economy, Croatia adopted the [Digital Croatia Strategy for the period until 2032](#) (SDH 2032) at the end of 2022, and it represents the umbrella national document when it comes to digital transformation of society and economy. The Strategy established a set of clear goals of digital Croatia for the next ten years, and also defined priorities for implementing public policies in all segments of the digital ecosystem.

The analysis of the current state of this document is based on the recently developed analytical basis for the development of the Digital Croatia Strategy for the period until 2032. When analysing the current situation for the purpose of developing the “Digital Croatia Strategy for the period until 2032”, some of the key long-term strategic documents taken into account are: “2030 Digital Compass”, the European approach to the Digital decade and the National Development Strategy of the Republic of Croatia until 2030. Of existing medium-term strategy papers, including: The National Recovery and Resilience Plan (NRRP), the National Broadband Development Plan, the National public Administration Development Plan, the National Health Development Plan, the National Plan for Education systems, the National Plan for work, Safety at work and Employment 2021-2027, etc. In addition to insights into relevant strategic planning acts, the Scoreboard took into account the conclusions of previous surveys, audits, strategic reports, recommendations, plans and other documents, such as: Modernisation of public administration, analytical basis for the National Development Strategy, Strategic Framework for the Digital maturation of schools and school system in the Republic of Croatia, Conclusions of the Report of the Republic of Croatia on Digital Education and skills within the framework of the Structural dialogue with the European Commission, Action Plan for the implementation of concrete examples of Good practice (Croatian roadmap) from Connectivity Toolbox and industry 5.0: a transformative vision for Europe.

In cooperation with key stakeholders to develop this document, the current analysis of the state of play has been updated in line with [the Digital Decade implementation Report 2023](#), the recently adopted strategy papers and other achievements in the digital transformation of society and economy. The main conclusions of the analyses carried out per priority area are summarised below:

## 1. The digital transition of the economy

According to the latest available data regarding the economic and social digitalisation index - DESI, which refers to 2023, the Republic of Croatia reached a value of 58% in the indicator “SMEs with at least the basic level of digital intensity”, which is below the EU average of 69% and well below the 90% digital decade target by 2030. Compared to last year's DECEMBER 2022 report, Croatia advanced by 8 percentage points (increase from 50% to 58%), while the EU average improved by 14 percentage points (increase from 55% to 69%), which indicates that Croatia should make significant efforts to raise the digital intensity of

SMEs. Regarding the use of the indicators “electronic sharing of information” (24%) and “use of social networks for business purposes” (24%), while the EU average is 38% and 29%. This indicates a lower acceptance of highly advanced and integrated IT solutions in the work of companies in the Republic of Croatia. Advanced digital technologies are increasingly popular among Croatian companies and 35% use cloud solutions (Cloud solutions). Cloud), 14% use a large amount of data (Big data) and 9% use disruptive technologies based on artificial intelligence (hereinafter AI), whereby Croatia is above or above the EU average (Cloud and AI) in all three indicators. Croatian companies take advantage of the opportunities offered by online commerce: 29% of SMEs sell online (above the EU average of 19%), while 13% of all SMEs sell across borders (above the EU average of 9%) and 13% of turnover comes from the online sales segment (above the EU average of 11%). At the same time, 43% of Croatian companies use e-invoices (above the EU average of 32%), which was significantly influenced by the contactless way of doing business during the COVID-19 pandemic, but also by the start of application of the Act on electronic invoicing in the public sector. While the electronic Exchange of accounts Act regulates an explicit obligation vis-à-vis contracting authorities, it is undeniable that it encouraged businesses to exchange e-invoices with each other.

According to the Digital Decade implementation Report 2023. Croatia should speed up its efforts in the field of business digitalisation. It is necessary to raise awareness of the benefits of business digitalisation, to provide public support for workshops and trainings, to increase participation in existing programmes (financing), particularly among SMEs. Croatia should intensify its efforts to support the development and deployment of reliable, safe, advanced technologies and solutions, especially for AI, cloud, big data, through the availability of legal and technical support and procurement procedures.

During the development of the Digital Croatia Strategy for the period up to 2032, the most significant strengths of Croatia in this domain were identified: Croatia is successful in the amount of startups and unicorn companies (per capita) in the EU, the continuous growth of the share of the IT industry in Croatia's GDP (2.5% in 2020) and its share in export product (growth of 13% in the period 2019-2020), the growing interest of the younger population in Croatia in STEM professions, established regional centres of excellence: CEKOM-I, EDIH, ZCI (scientific centres of excellence), regional research and development centres fostered by the private sector, and digital literacy of young people (future stakeholders in the labour market) at the European top (EUROSTAT, 2020).

During September 2023, Croatia co-signed a joint statement with other Mediterranean countries (i.e. Malta, Spain, Cyprus, France, Greece, Italy, Portugal, and Slovenia) and committed to supporting investment, research and innovation through the use of artificial intelligence.

According to the IMD World Digital Competitiveness Rankings (World Digital Competitiveness Scoreboard) for 2022, Croatia ranked 43rd out of 63 countries, a 12-point improvement year on year. According to the same source, Croatia lags behind other countries, especially in the field of international experience, attractiveness for highly skilled foreign workers, regulatory framework for technology development and application, and the ability of knowledge transfer companies.

An important economic factor for further digitalization of Croatian society is the strength of the national IT industry. Namely, the Croatian IT industry is continuously growing and in 2021 it accounted for 3.4% of national GDP and in the same year it contributed 5.8% to total exports of the Republic of Croatia. Further strengthening of this presentation industry is an important pledge of keeping ICT experts (ICT experts) in Croatia, and thus the national ability to realise the accelerated digitalisation of society and economy. Also,

the growth of the national IT industry shows an increase in the availability of (price-attractive) capital for the development/acquisition of IT companies.

In addition to the ICT industry, the financial sector is one of the most influential sectors on the digital transformation of society. The digital transformation of the financial sector, in particular the digitalisation of payment systems and instruments, plays an important role in the faster uptake of digital changes in the economy and in society in general, by developing consumer confidence in the functioning of e-commerce and e-services. The Digital Croatia Strategy for the period until 2032 indicates that leading banks in Croatia are lagging behind digital leaders in a significant number of digital banking functionalities, and FinTech companies have not achieved high market penetration. Therefore, further stimulation of digitalisation of payment systems and instruments should be the lever of the accelerated digital transformation of Croatian society.

Tax reform started in 2016, however, the analysis of the situation made when SDH 2032 was adopted indicates that further tax and administrative relieving of taxpayers is still necessary.

Croatia is taking action to address these weaknesses by establishing a shared services Centre (CDU), a measure aimed at providing a scalable, highly secure, energy-efficient cloud-based platform to connect with the state information infrastructure. The CDU platform will also be integrated into the European common data space to enable secure hosting, access and exchange of data and services at EU level. The action relies on building a blockchain platform to establish a service to join public or private networks using an open-source blockchain solution for public sector applications.

The multi-user blockchain distributed book technology platform, linked to the European blockchain Partnership, is expected to boost investments and projects in the areas of digital identity, digital mail, digital diploma, digital notebook and reliable data sharing.

Mid-2022 Croatia has also launched other activities that support the digitalisation of businesses (such as the NRRP component C1.1), for a resilient, green, and digital economy. In particular, the NRRP includes 'Digital grants' 6, worth €27.3 million, are aimed at supporting the digital transformation of around 160 Croatian SMEs by providing financial support for the implementation of digital solutions.

Furthermore, the NRRP includes measures aimed at “enhancing competitiveness and the green transition of the economy” using financial instruments, with a total value of 106 million euro. The measure is intended to increase access to finance by strengthening the activities of the banking sector and other financial intermediaries, in order to ensure a faster recovery, strengthening the transition of the economy through the adoption of green and digital technologies with the aim of strengthening the resilience of the Croatian economy.

Croatia is home to two unicorns and one potential future unicorn with a market value of between €100 million and €1 billion, Croatia intends to boost research and innovation in digital technologies to contribute to the goal of the digital decade to double the number of unicorns in the EU. Croatia also finances support measures for Digital Innovation Hubs (DIH) as a contribution to the implementation of European Digital Innovation Hubs (EDIH) such as CROBOHUBplus<sup>7</sup> (the encouragement of Croatian industry and society), AI4HEALTH.Cro<sup>8</sup> (artificial Intelligence for smart Health and medicine), EDIH Adria<sup>9</sup>, and AI and gaming EDIH (Digital transformation of Central Croatia and Northern Adriatic via AI and gaming EDIH).

Croatia needs to intensify support for the economy and research in using the capabilities of High-performance supercomputers (HPC) that enable faster development of new products through advanced design and simulation processes and application of artificial intelligence, which results in greater competitiveness of products and their faster marketing, i.e. development of new processes and services that would not be possible without such computers. High performance computers are essential for dealing with a range of challenges and there is no social, scientific, or industrial area in which they have not found their application.

## **2. Digitalisation of public administration**

According to the latest DESI indicators (Report on the implementation of the DD 2023), Croatia records the best results in customer support (86 points, while the EU is an average of 84 points) and access to electronic health records (86 points, while the EU is an average of 72 points), confirming the maturation of digital public services and customer support. In addition to medical images, all types of relevant health data are available and frequently updated, including electronic health summaries, ePrescription and eDiscovery data and various electronic reports (lab results, medical imaging reports, hospital discharge reports). Electronic identification number applications, in accordance with the eIDAS Regulation, facilitate access by 80-100% to citizens through online portals. Most healthcare providers are connected to the national electronic access service for citizens and provide access to relevant health data (including pharmacies, rehabilitation centres and mental health facilities). At the same time, Croatia is slightly below the EU average when it comes to the accessibility of e-services via a mobile device (90 points, while the EU is 92 points). However, compared to the EU average, Croatia lags behind in terms of digital public service users (69%, while the EU is an average of 74%), digital public services for citizens (71 points, while the EU is an average of 77 points) and entrepreneurs (67 points, while the EU is an average of 84 points), and transparency in the provision of design services and personal data (52 points, while the EU is an average of 65 points).

According to the eGovernment benchmark Survey for 2023, the maturity of Croatian e-government ranks 23rd in Europe (out of 35 countries). The study indicates that the Republic of Croatia insufficiently exploits the potential of information communication technologies (ICT) for the provision of public e-services and other public services. Namely, although the Republic of Croatia has areas that have been adequately digitised years ago (e.g. central electronic health care system), the study points out that Croatia has yet to provide important preconditions for the improvement of the system of public e-services, including transparency regarding the provision and design of public services and the use of personal data, regular monitoring of technological trends, implementation of advanced technological solutions when digitalising services and administrative procedures, as well as upgrading of existing information infrastructure and systems, especially when it comes to systems of fundamental registers.

On 8th of May 2023, there were 104 e-services developed and activated in the e-Citizens system. The e-Citizens system has currently 1.827.940 users. The trend of increasing users is continuously growing, and in the last two years around 380,000 new citizens have applied to the platform, partly driven by two external events: a) the COVID pandemic due to which citizens are directed to the e-Citizens portal to submit applications for the EU digital COVID certificate; b) a census within which citizens are allowed to independently enumerate members of their household.

Croatia has established a national identity card (EID) in accordance with the National Identification and Authentication System (NIAS) but is not currently involved in the European Wallet Testing Pilot Project.



During the development of the Croatian Digital Strategy for the period up to 2032, the most significant strengths of Croatia in this domain were identified: historically high financial resources were secured through the NRRP for the digital transformation of public administration and society (HRK 2.87 billion), a comprehensive legal framework that enables and encourages electronic communication and digitalization of administrative and other procedures and business processes of public law bodies (Act on Amendments to the General Law Act), administrative procedure and the new Regulation on office operations, continuous growth of users of e-services, established operating model of accelerated digitalization of public services (adopted Standard of development of public e-services, established concept of agile team, defined framework of introduction of quality systems in public administration, etc.), and successful development of the e-Citizens system and platform START intended for digitalization of services in the segment of entrepreneurship.

In terms of digital infrastructure of public administration, significant progress has been made in the past period, especially in the context of the development of the Centre for shared services (CDU), also known as the “state cloud”. By 2023, over 500 public institutions, such as ministries, other state administration bodies, hospitals, etc., had migrated their systems to CDU and used some CDU service.

The Regulation on office business was adopted, which stipulates the obligation to adapt or establish information systems for office business. It enables complete office operations in electronic form and stipulates a functional obligation to connect and exchange data with other information systems that are managed separately for certain administrative areas, as well as the possibility of linking and exchanging data with the CIUP IT system<sup>1</sup>.

A platform has been established with electronic services for e/m-signatures and e/m-signatures, enabling the process of electronic and mobile signatures and endorsements and validation of electronic signatures and seals. By May 2023, 906 public law bodies were connected to the platform (institution of state and public administration or local and regional (regional) self-government units).

In the context of the coordination and interoperability mechanisms necessary for data exchange and business analytics of the public administration, the development of the government service bus (GSB), as the central base for secure data exchange, continued. Currently, 17 state administration bodies have integrated 33 registers and records into the production environment and 33 registers and records into the GSB test environment, 152 bodies/institutions that have downloaded data for their business processes have integrated into THE GSB. A total of 112 web services/programming interfaces (APIs) are integrated for data download.

The AI project for smart Health and medicine (AI4Health.Cro) has been rated excellent by the European Commission as part of the Digital Europe programme. AI4Health.Cro is a non-profit public-private consortium that considers AI essential for improving health care and as a catalyst for leading Europe into a healthier future. AI4Health.Cro will offer comprehensive support to companies and public entities with advanced services and AI-based technologies addressing current health care needs and public health systems for digital transformation.

Other activities include standardised training of public administration employees involved in the provision of services and advanced ICT training, new technologies and management skills for digital transformation workers. Judging by the low response of public service users in Croatia, it seems that the efficiency and impact of these measures could be improved through enhanced consultations of public service users with

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<sup>1</sup>ZUP IT - information system for monitoring the implementation of the General Administrative procedure Act (NN 47/09, 110/21)

the aim of improving user simplicity, interoperability, efficiency, availability and adoption of online public services.

According to the Digital decade implementation Report 2023, in order to close the gap in electronic public services in Croatia, it is also important to strengthen the strategic use of innovation procurement in order to accelerate the adoption of innovative digital solutions in all its public services. Croatia should include the procurement of innovations in its national digital strategy as a strategic tool for modernising public services and increasing its investments, both in R&D procurement and in public procurement aimed at the adoption of innovative ICT. Namely, the same report States that Croatian investments in the adoption of transformative digital technologies, including those new to the market, are well below the European average. Addressing this challenge is crucial to offering top-notch public services with a rich set of functionalities that enable more efficient and personalised interaction with citizens, businesses, and other state administration bodies. This would help speed up the wider adoption of advanced digital solutions in the public sector (such as AI/big data, virtual reality/metaverse, robotics, HPC, blockchain, etc.).

Also, according to the report on the implementation of the DD in 2023, Croatia should step up its efforts to digitise public services. In particular, the user-friendliness of online public services should be improved, including the improvement of customer support. Croatia should step up its efforts to increase public procurement investment in the development, testing and implementation of innovative digital solutions and bridge the gap between local and regional (regional) self-government units and central government.

### **3. Development of broadband electronic communications networks**

The latest available values of the Digital decade implementation Report (2023) show that Croatia has made significant progress on very High-capacity Network coverage (VHCN) compared to the previous year (52% in 2021 and 61% in 2022), but remains lagging behind the 73% EU average. Croatia made progress in terms of fibre network coverage (FTTP) in 2022, from 39% to 53.9%, slightly below the EU average of 56%. However, it remains significantly behind in the use of fixed high-speed broadband (100 Mbit/s and 1 Gbit/s).

Although the gap has decreased significantly from the EU average over the past year, rural areas of Croatia remain lagging behind in terms of coverage of new generation access networks (NGA) (51.9% compared to the total average of 87.9%), FTTP networks (13.7% compared to the total average of 53.9%) and VHCN networks (19% compared to the total average of 61.5%).

During the development of the Digital Croatia Strategy for the period until 2032, the most significant Croatian forces in this domain were identified: developed mobile networks, 5G readiness, and high use of broadband services in mobile networks.

On the other hand, Croatia has achieved a significant improvement in the overall coverage of 5G networks from 34% to 82%, an increase of 48 percentage points, and is currently above the EU average (81%) but remains lagging behind in the rural area coverage 5G (73,5%, which is 9 percentage points below the total national coverage). Despite a significant increase in 5G coverage, Croatia is still lagging the EU average in mobile broadband use (81% compared to the EU average of 87%). In conclusion, the Report on the status of the Digital decade for 2023 proposes that the Republic of Croatia accelerate its efforts regarding the development of connectivity infrastructure, primarily through additional activities aimed at stimulating demand and the use of gigabit services, and by making additional efforts related to the deployment of

gigabit networks, especially fibre optic networks to the building/facility (FTTP) in rural areas. Implementation of measures financed by RRF and ERDF funds is also of paramount importance.

#### **4. Digital competences and digital jobs**

According to the latest available data of the Digital Decade implementation Report 2023. (DDCCR 2023) for the Republic of Croatia, more precisely based on the DESI report for 2023) the level of digital skills of the Croatian population according to key indicators is above the EU-27 average. In Croatia 63.37% of citizens aged 16-74 have at least basic digital skills (compared to the EU-27 average of 54%) and 31.18% of individuals have digital skills above basic (compared to the EU-27 average of 26%). For the indicator 'at least basic digital content creation skills' 81% compared to 66% at EU level. Given the positive trend in recent years, Croatia is expected to make an important contribution to achieving the EU's 2030 target of basic digital skills. Furthermore, 81.25% of individuals in Croatia have at least basic competences to create digital content, which is significantly higher than the EU-27 average (66%).

Croatia also has good showing in terms of percentage of ICT graduates with a score of 4.8% and 0.6 percentage points above the EU average of 4.2%. However, ICT experts make up a relatively low percentage (3.7%) of the labour force in Croatia compared to the EU average (4.5%), as an insufficient number of them enter the labour market from education and abroad, while some experts migrate to other EU countries. As regards the indicators of the share of employment, women among ICT professionals, 18.3% - (RH DESI 2021 focus) decreased participation, to 14.65% (RH DESI 2023), also below the EU average (19%), in order for the Republic of Croatia to start again recording more evident gender equality rates of employees in the ICT sector, significant efforts are also necessary to stop the current negative trend, by continuously supporting activities that will result in higher employment rates of women in the ICT sector.

According to the Digital Decade implementation Report 2023 Croatia should increase the capacity of its education system to train more ICT professionals and take measures to keep them on the labour market while attracting talent. Croatia should encourage more students to receive professional training programmes in computing and information sciences, by implementing specific, time-limited, and measurable actions, with particular attention to increasing the number of cyber security experts.

During the development of the Digital Croatia Strategy for the period until 2032, the most significant Croatian forces in this domain were identified: Croatia is above the EU average in terms of the number of persons with basic digital competences and competences at a level higher than basic, the education sector has shown a high readiness to implement digital technologies and acquire new digital competences through the e-schools project, regional centres of competence in vocational education have been established, and centres in the electrical engineering and computing sector can contribute to the creation of ICT experts, and Croatia is an extremely desirable and safe place to live, which is an important factor for attracting foreign ICT professionals and digital nomads.

Croatia has realised significant investments in digital transformation in primary and secondary education through its e-schools programme (2014-2023), supported by ESI Funds for the period 2014-2020. The programme enabled the connection of schools, equipment and digital devices for teachers and contributed to the development of digital educational content and e-services important for the school administration (e.g. e-Class Register). The Investment Programme followed a robust monitoring and evaluation system, including a periodic evaluation of the digital maturity of schools and two external impact evaluations (both to be completed in 2023). The framework for the digital maturity of schools

(with five levels of maturity) has been developed to assess the state of play and progress in the implementation of investments. According to the latest [data on the digital maturity of Croatian schools from 2020](#), 1% of schools in Croatia were considered digitally unconscious, 8% digital beginners, 50% digitally competent, 40% digitally advanced and 1% fully digitally mature. Although the e-schools programme clearly points to a gradual improvement in the level of digital maturity of schools, there is a clear need for additional investments to ensure the long-term and adaptive transformation of the system. It is expected to shift the focus towards a more systematic integration of digital technologies into the pedagogical process, with an emphasis on strengthening the professional training of teachers and school principals, which was already part of the e-schools programme. Although the programme is ongoing with the planned equipping of schools with network and ICT equipment, the establishment of a sustainable school maintenance system remains a challenge. Schools in the Republic of Croatia are not connected with links at speeds appropriate to their needs. Also, most school principals are not ready for the computerisation challenges ahead. The evaluation of digital maturity showed that a large part of schools reached medium and higher levels of digital maturity and that teachers gained exceptionally important experience during distance learning, developed their digital competences, self-confidence, and some of them changed their attitudes towards technology in education. At the same time, a great task before the entire system remains in the form of raising the quality of the use of technology in teaching, better organisational preparation of distance learning, continuation and expansion of professional training and adoption of digital competences of teachers and pupils, exploitation of existing digital materials and tools and continuous provision of support to teachers and pupils, as well as their continuous equipping.

The challenge to realise the potential of digitalisation is the incompatibility of labour force competences with labour market needs, not only in terms of the number of ICT professionals, but also in terms of digital competencies of labour force from non-IT occupations. Identifying future skills needs, in order to plan educational outcomes in a timely manner, is essential to reconcile labour supply and demand. In order to detect which education programmes are eligible for the award of vouchers, i.e. the acquisition of which skills will be financed in response to labour market needs, a “skills mapping” system should be established. MROSP has already, in cooperation with employers and analysis of enrolled occupational standards and their respective competency sets enrolled in the CROQF Register, defined a list of 60 deficit skills with an emphasis on digital and green skills. “Skills mapping focuses on priority competences and knowledge in the labour market, i.e. on those adult learning programmes that lead to the acquisition of these priority skills through their learning outcomes, with a focus on digital and green.

According to the Digital skills Lifelong learning Preparedness Index (IRDLL), Croatia is among the 27 EU Member States on average (13th place) in the EU. This index shows that Croatia performs best in the area of “institutions and policies for digital learning”, where it ranks 3rd among EU member States. In contrast, Croatia is almost at the very back of the EU in the areas of “participation in lifelong learning and its results” (24th place) and “access to digital learning” (21st place). There is a lack of promotion of citizens' lifelong education in basic digital skills. For example, when it comes to adult digital skills, the Republic of Croatia recognises the lack of motivation for older people to acquire basic digital skills and the risks it poses for deepening the digital divide, participation in society and online security. There is currently no strategy to address this problem. Financial incentives (such as a voucher system) exist for the low-skilled employed and unemployed, to train the acquisition and/or improvement of digital skills, as well as individual measures related to the empowerment of the system and the promotion of lifelong learning.

Recognising teachers' efforts to use digital technology, regular and more frequent use of digital technology in classrooms, then the digital transformation of vocational and adult education, as well as raising awareness of artificial Intelligence (AI) were identified as shortcomings in supporting the continuation of the process of informatisation and application of digital technologies in the education and training system with a view to the purposeful use of digital technologies in learning and teaching and consequently the development of digital competences. AI already affects the labour market and introduces additional uncertainty. Artificial intelligence is projected to play a key role in transforming business and social processes, so students need to be prepared and trained to work and apply it or further educate in this field. During the structural dialogue, the Republic of Croatia expressed its willingness to cooperate and exchange experiences, knowledge and experts in the area concerned. It is also necessary that the Republic of Croatia continue its activities of developing curriculum and digital educational content and supporting the application of new digital technologies in learning and teaching.

The Republic of Croatia has significantly strengthened its legal framework to prevent, discover and deter cyber-attacks, especially with the current introduction of NIS2 directives. At the same time, the national CSIRT within CARNET is particularly focused on strengthening the cybersecurity process in public and private organisations of the educational and academic system and raising at least basic levels of cybersecurity, which is also one of the set general targets in the Digital decade Decision.

Other key weaknesses of Croatia in the field of education include the lack of primary and secondary school teachers in STEM (primarily mathematics, physics, it) who, due to low wages in schools, leave the educational sector, i.e. their interest in joining it is lacking.

Teachers, educators, and employees of institutions in the public education sector who care and take care of the development of the entire vertical of the educational system as well as the informal part are crucial for ensuring preconditions within the planned projections of the digital goal br.1, and then through the entire vertical of the educational system as well as for the purpose of achieving the digital goal br.2. In this respect, activities are being undertaken through the recently established National Executive Agency for teacher training, as well as plans for a technology application Advisory Hub aimed at providing tailored support to digital pedagogy institutions and teachers. The implementation of digitalisation and modernisation in the higher education system (VET) and entails increasing the accessibility, quality and relevance of higher education and achieving the target of increasing the share of people with higher education qualifications and their employability, as well as training and raising the competences of higher education professionals for learning and teaching in the digital environment.

According to the 2023 EU Code Week, Croatia ranks 8th with 24 activities as part of the coding week. Furthermore, in 2022 Croatia was among the first 12 countries in the number of EU coding weeks of organised activity (1076) with more than 37,000 participants, with 50% participation of women. Since the school year 2018/2019., a new curriculum has been adopted for the informatics course for primary schools and grammar schools in the Republic of Croatia, according to which the informatics course has been introduced since the first grade of primary school as an elective course, while in the 5th and 6th grades of primary school informatics is a mandatory course. Also, since the school year 2019/2020., a curriculum of the inter-topic usage of information and communication technology for primary and secondary schools has been adopted.

The need for business literacy and ICT skills is expected to grow the most in the period up to 2030, as the fastest growing sector in which many skilled workers are already lacking. The EU, including Croatia, is faced with the urgent need to adapt to the new challenges of the digitalisation process not only in the labour market, but also in education, stressing that various targeted activities should be carried out in order to arouse interest and involve as many people as possible, especially women, in this field of education. The lack of ICT professionals in the labour market in terms of the needs and growth opportunities of companies is partly due to the lack of a national plan to internationalise, attract and retain digital professionals and talent.

In past recent years, the number of women in non-standard, digitalised forms of work has increased, and more and more women are participating in the so-called “gig economy” (wrestle: “freelance economy”), especially women with higher education. While advancing certain technological processes could facilitate female employment, the need for general digitalisation and labour market automation could further jeopardise the position of women if the principle of gender equality and human rights is not applied in the use of artificial intelligence and does not prevent automation in the use of previous algorithms, with dominant male characteristics (e.g. in the recruitment process). Some of the obstacles to greater participation of women in the ICT sector are strong gender stereotypes and divisions, lack of visibility of female role models in ICT and lack of developed mentor network, which was also discussed at round tables held on this topic.

## 2 NATIONAL TRAJECTORIES AND TARGETS TO CONTRIBUTE TO THE EU'S DIGITAL TARGETS

This chapter describes how the Republic of Croatia plans to contribute to the achievement of the EU's digital targets and thus the targets of the Three Seas Initiative, which are in line with the EU's wider digital policy, listed in Article 4. The 2030 Digital decade Policy Agenda This chapter defines its national targets and national projected trajectories that contribute to each of the digital goals by 2030.

The targets take into account the state of play and historical trends of indicators, national capacities and resources, comparative advantages and planned policies and measures to contribute to digital targets. The relevant policies and measures are contained in the Digital Croatia Strategy for the period until 2032, as well as in other relevant national documents and plans (e.g. National Development Strategy of the Republic of Croatia 2030). The achievement of national trajectories will be monitored through DESI reports indicators or other relevant data sources. As of 2023, the EC ceases publishing THE DESI report and the relevant indicators will be monitored through a new annual report on the state of implementation of the digital decade.

The methodological approach to assessing the national contribution to the achievement of the EU's digital targets is based on the development of a base model which is then adapted according to the planned implementation of policies, measures and activities affecting the EU's digital targets. The base model is based on linear regression in accordance with data FROM DESI reports<sup>2</sup> and other relevant data sources for 2021, while values have been set as targets in 2030 to ensure the achievement of the set EU targets. The data were then verified and adjusted, if necessary, in accordance with the planned policies, measures and activities and the dynamics of their implementation. [Appendix II](#) to this document clarifies the methodology for defining the target for another digital target. It is important to note that every 2 years the verification of the set targets will be carried out. It is not possible to determine the starting value or to estimate the national contribution to achieving this target during the development of this document. However, the value of all indicators will be sought until the revision of this document in 2025.

The values of the national contribution to the EU's digital targets are set out in the table below, while the following chapter provides a detailed description of the policies, measures and activities that will affect the achievement of the targets.

#	EU Digital target	KPI	National contribution to the EU's digital targets									
			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
1	At least 80% of 16-74-year-olds have at least basic digital skills	DESI - 1a1 at least basic level of digital skills (% of citizens)	63%	63%	65%	67%	69%	71%	73%	75%	77%	80%
2	At least 20 million ICT professionals are employed in the Union, promoting women's	DESI - 1b1 ICT experts (% of	3,6%	3,7%	4,1%	4,5%	4,9%	5,4%	5, 8%	6,2%	6.6%	7.0%

<sup>2</sup>[DESI Report for Croatia 2022](#)

	access to the field and increasing the number of ICT graduates;	employees aged 15-74)										
3	All end-users at a fixed location are covered by a gigabit network to the end point of the network and all populated areas are covered by next-generation high-speed wireless networks with performance at least equal to 5G, in accordance with the principle of technology neutrality	DESI - 2b2 5G coverage (% of inhabited areas)	34%	82%	83,6%	85,3%	86,9%	88,5%	90,1%	91,8%	93,4%	95%
		5G network coverage using the 3.4 GHz – 3.8 GHz frequency band (% of inhabited areas) <sup>3</sup>	n/p	37,2%	38,6%	40,2%	41,9%	43,5%	45,1%	46,8%	48,4%	50%
		DESI - 2a1 use of fixed broadband at least 100 Mbps (% of household)	19%	28%	31%	34%	36%	39%	42%	45%	47%	50%
		DESI-2a2 use of fixed broadband at least speed 1 Gbit/s (% of households)	n/p	0,66%	2,19%	5,45%	8,71%	11,97 %	15,22 %	18,48 %	21,74 %	25%
		DESI - 2a3 very high capacity fixed network coverage (% of households)	52%	61%	66%	71%	76%	81%	85%	90%	95%	100%
		DESI - 2a4 coverage to connect objects to the network	39%	54%	60%	66%	71%	77%	83%	89%	94%	100%

<sup>3</sup>HAKOM proposes to add coverage criteria with frequency band 3.4 GHz to 3.8 GHz. This indicator is part of the annual Omdi questionnaire for 2021 and 2022 and refers to high quality 5G network



		optical fibres (FTTP)										
		DESI - 2b1 use of mobile broadband (% of citizens)	81%	83%	85%	87%	89%	92%	94%	96%	98%	100%
4	Production, in accordance with Union environmental sustainability law, of state-of-the-art semiconductors in the Union accounts for at least 20 % of the value of world production	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p	n/p
5	At least 10,000 climate-neutral and extremely secure edge nodes are in use in the Union, deployed in such a way that companies are guaranteed access to low-latency data services (i.e. a few milliseconds) wherever they are located	Number of peripheral nodes <sup>4</sup>	n/p	1	3	6	11	17	23	29	34	41
6	By 2025, the Union has its first quantum acceleration computer, paving the way for it to have state-of-the-art quantum capabilities by 2030.	High performance supercomputers	3	3	3	3	4	4	4	4	4	5
7	At least 75 % of companies in the Union use one or more of the following technologies, in line with their business: cloud computing services, big data and/or artificial intelligence	DESI - 3b3 big data (% of enterprises)	14% (2020)	17%	19%	20%	22%	24%	25%	27%	28%	30%
		DESI - 3b4 Cloud (% of enterprises)	35%	40%	45%	49%	53%	57%	62%	66%	70%	75%
		DESI - 3b5 artificial Intelligence	9%	10%	11%	13%	14%	15%	16%	18%	19%	20%

<sup>4</sup>National trajectories and targets for the number of peripheral nodes in the Republic of Croatia are defined based on EC study: [edge deployment data Report – country reports](#)

8	More than 90 % of SMEs in the Union have reached at least a basic level of digital intensity	DESI - 3a1 SMEs with at least a basic level of digital intensity (% SMEs)	50%	53%	55%	60%	65%	70%	75%	80%	85%	90%
9	The Union is facilitating the growth of its innovative scale-ups and improving their access to finance, bringing the number of unicorns in Europe to at least double	n/p	2	2	2	2	2	2	2	2	3	4
10	100 % of key public services are available online and, where relevant, citizens and businesses in the Union have the opportunity to interact with public administrations online	DESI - Digital public service 4a3 for citizens (0 to 100)	69	71	75	79	83	87	91	95	99	100
		DESI - 4a4 digital public services for businesses (0 to 100)	68	67	70	75	80	85	90	95	99	100
11	100% of Union citizens have access to their electronic health records	% of citizens with access to their electronic health records	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
12	100 % of Union citizens have access to secure electronic identification (eID) means recognised throughout the Union, allowing them to have full control over transactions involving their identity and the personal data they share	At least one national eID scheme reported in accordance with Regulation (EU) 910/2014	1	1	1	1	1	1	1	1	1	1
		Digital wallet issued in accordance with the proposal for Regulation (EU)	0	0	0	0	1	1	1	1	1	1

		No 910/2014 establishing a framework for European digital identity											
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### 3 POLICIES AND MEASURES TO ACHIEVE DIGITAL TARGETS

#### 3.1 Overview of digital targets

Digital goals have been announced through 12 individual goals, the total cost of which is estimated at around 970 million. EUR and are published in more detail below this document.

3.1.1 *Digital target 1: at least 80% of people aged 16-74 have at least basic digital skills.*

- **National baseline:** 63% (2021); **EU baseline:** 54% (2021)
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b>Measures contributing to the target</b>								
<i>Measure 1 – continuous development of digital competences of citizens through targeted education and training</i>								
<i>Measure 2 – developing the competences of the workforce for the application of digital technologies</i>								
<i>Measure 3 – Digital maturation of primary and secondary education systems</i>								
<i>Measure 4 – Modernisation of higher education for the digital age</i>								

#### Budget of all measures attributable to the target

- Public investment:
  - Already spent: 4.3 million. EUR
  - Total planned: 265.1 million. EUR
    - NRRP Investment C3.1. R2-I1: 84, MFF Digital transformation: 84 million. EUR
    - Programme “effective human resources” 2021-2027:
      - “Providing targeted support to regional competence centres (RCK - Phase II) in raising the quality and competitiveness of local/regional vocational education and training” - 6 million. EUR

- Strengthening the competences of educational workers in accordance with reform processes (Agency for Education – AZOO) - 44 million. EUR
- Support for the introduction of digital technology into education - Project brain (CARNET) - 15 million. EUR
- Complete computerization of the Education system (CARNET) – 8.15 million. EUR
- Further development of quality assurance systems in adult education and raising awareness of the importance of lifelong learning 11.5 million EUR (ASOO)

**Response of measures to Member State specific challenges:**

▪ **First challenge – low level of digital competences in vulnerable groups, such as the elderly and the long-term unemployed**

- Measure 1 is expected to contribute to the development of citizens' digital competences, which show a lower level of development of digital competences. Vulnerable costly societies, such as older people and rural residents, with a lower level of digital competences, should benefit in particular from this measure. The measure will continuously encourage the development of digital competences through targeted education and training. Furthermore, measure 1 will encourage the involvement of civil society organisations in the process of developing citizens' digital competences, all with a view to covering the widest possible range of citizens where the development of digital competences needs to be encouraged.

▪ **Second challenge – incompatibility of labour force competences with labour market needs**

- Measure 2 is expected to contribute to the development of the digital competences of the workforce. In order to achieve all the benefits of the digital transformation and increase competitiveness and value of work, it is necessary to work on developing the competences of the workforce for the application of digital technologies and in non-it-occupations, and to adapt the development of human resources for traditional industries and occupations to the needs of the digital environment. In doing so, competences for increasing competitiveness relate to understanding the digitisation of individual non-it sectors, monitoring and measuring relevant variables with a prominent component of the Internet of things, networking of devices and processes, collection and archiving of data which enables monitoring and optimisation of the work of the sector including artificial intelligence algorithms.

▪ **Third challenge – insufficient and uneven digital maturation of the education system**

The basis for systematic and quality acquisition of digital competences is a digitally mature education system. Measure 3 is expected to contribute to the further digital maturation of primary and secondary education systems. Through the measure in question, the development of digital competencies of teachers, maintenance of information infrastructure and accompanying equipment will be continuously encouraged, with continuous upgrading of the functionality of existing elements of the ICT system in education, and it is necessary to continue investments in the core network and computer e-infrastructure

of the education system. Measure 4 will contribute to the digital transformation of higher education by redefining enrolment quotas for conducting studies in the field of computing, as well as other studies. It is noted that we don't have sufficient and even equipping of higher education institutions for quality higher education in relation to the systematic embedding of digitalisation. Accordingly, effective investment in the digital transformation of higher education institutions is necessary, which requires digital teaching infrastructure, digital teaching tools and the strengthening of teachers' competences for teaching in the digital environment.

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified. For example, measure 1.2. The development of skills of the workforce for the application of digital technologies shall be carried out by the end of 2030, and funding shall also be provided by 2030. (NRRP until 2Q 2026 and ESF + until 2027 + 3 years). Therefore, the potential investment gap was not identified.

**European Digital Rights and principles:** The implementation of the planned actions for Digital goal 1 will actively promote the principles of *putting people at the heart of the digital transformation, Solidarity and inclusion, participation in the digital public space, and sustainability*. Measure 1 will foster the development of citizens' digital competences, pay particular attention to older people and other vulnerable groups, with a view to integrating them into the digital public space and strengthening digital literacy. Therefore, this measure will directly contribute to greater solidarity and inclusion of citizens, especially vulnerable groups, in digital space. At the same time, the development of digital competences in line with labour market needs will be encouraged to give every citizen the opportunity to participate in the labour market in the digital age. Once again, special attention will be paid to those currently in a weaker position and excluded from the modern labour market. The measure will work to equip them with digital skills to integrate them into the labour market. The digital maturation of primary and secondary education systems and the modernisation of higher education will respect the digital principles of putting people at the heart, solidarity and inclusiveness, as well as sustainability. Namely, when implementing hardware and infrastructure solutions into the education system, special attention will be paid to their environmental impact, and the implementation of digital software solutions will enable access to easier education for people with developmental disabilities (e.g. ATTEND project). At the same time, efforts will be made to improve the digital competences of teachers and pupils, putting people at the heart of education, and enabling their inclusion in everyday digital space, but also in the modern labour market for which digital competences are imperative. Finally, when implementing measures for primary, secondary, and higher education, account will be taken of the uniform equipping of educational institutions on the territory of the entire Republic of Croatia, especially rural areas, with the aim of inclusiveness of all schools and students in the digital transformation.

*3.1.2 Digital target 2: at least 20 million ICT professionals are employed in the Union, promoting women's access to the field and increasing the number of ICT graduates*

- **National baseline:** 3.7% of ICT specialists in total employment (2022); **EU baseline:** 4.6% of ICT specialists in total employment (2022)
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b><i>Measures contributing to the target</i></b>								

<i>Measure 1 – increase in the number of ICT specialists</i>								
<i>Measure 2 – Creating an enabling framework to attract researchers to STEM and ICT areas</i>								
<i>Measure 3 – Promoting non-formal education and reskilling of the labour force according to labour market needs, in particular for unemployed and other vulnerable groups</i>								
<i>Measure 4 – Development of research and technological infrastructure</i>								
<i>Measure 5 – implementation of the Declaration on commitment to the issue of women in the digital world and fostering greater representation of women in the ICT field</i>								

**Budget of all measures attributable to the target**

- Public investment:
  - Already spent: 0.3 million. EUR
  - Total planned: 176.5 million. EUR

**Response of measures to Member State specific challenges:**

- **First challenge – insufficient number of ICT professionals in the labour market**
  - Measure 1 is expected to contribute to increasing the number of ICT graduates and thus ICT specialists in the local labour market. This increase will be achieved by increasing professional development programmes for the purpose of lifelong learning at higher education institutions and adult education programmes, and in accordance with financial possibilities by redefining enrolment quotas in study programmes in the fields of computing and information sciences, amendments to accredited study programmes and, if necessary, establishing new study programmes at Croatian higher education institutions <sup>44</sup>. It is important to emphasize that the implementation and establishment of informal education programmes in the field of ICT will primarily be

encouraged. At the same time, the measure will attract foreign students and ICT specialists to Croatian educational institutions and the labour market, which will ultimately increase the number of ICT specialists. Furthermore, measure 2 will develop an incentive framework for attracting students from Croatia and abroad as well as researchers to STEM and ICT areas. The measure will work on establishing a new framework of instruments for the advancement and career development of researchers, and will finance programmes to strengthen, attract and retain human capacities, to strengthen competences for STEM and ICT, to foster mobility (cooperation with international institutions and industry), etc. As part of measure 3, the implementation of non-formal education and retraining of the workforce will be encouraged in accordance with the needs of the labour market, i.e. in accordance with the needs of ICT professionals. A special focus of this measure will be vulnerable groups, such as the long-term unemployed. Measure 4 will develop scientific technology infrastructure and the investment is expected to attract, but also retain, students and ICT professionals.

- **Second challenge – insufficient representation of women in the ICT field**

- Underrepresentation is observed at all levels of the digital economy: in engineering and physics, but also in the number of women who are employed, in management positions in corporations and entrepreneurs. Measure 5, by implementing the Declaration on commitment to the issue of women in the digital world and encouraging greater representation of women in the ICT field, is expected to ultimately increase the representation of women in the ICT field. Increasing women's participation, visibility and engagement in the digital economy could help address the lack of ICT knowledge in the EU and boost economic growth and wider social progress.

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified. For example, measure 2.3. Encouraging non-formal education and retraining of adults to acquire ICT skills of employees, the unemployed including vulnerable groups is implemented by the end of 2030 and funding is also provided by 2030 (ESF + by 2027 + 3 years). Therefore, the potential investment gap was not identified.

**European Digital Rights and principles:** The implementation of the planned actions for the 2nd Digital target will actively promote the principles of *putting people at the heart of the digital transformation, Solidarity and inclusion and sustainability*. The measure of increasing the number of ICT specialists will encourage the completion of studies in STEM and ICT areas, as well as amendments to accredited study programmes and, if necessary, the establishment of new study programmes and the redefinition of enrolment quotas in existing study programmes in these areas. During the implementation of these activities, people will be put in the centre, i.e. in cooperation with the academic community and students, measures will be developed with the aim of encouraging the completion of study programmes, and in



accordance with the interest of future students and labour market needs, new study programmes will be opened. Furthermore, measure 1 will encourage the award of scholarships for STEM study programmes, but also internationalise the education system. During the implementation of these activities, special attention was paid to respect solidarity and inclusion, but also to putting people at the heart of the digital transformation. Namely, persons with affinities for ICT, but potentially poor financial situation through scholarships will be provided with funds for their inclusion in study programmes. At the same time, the inclusion of foreign students in study programmes in the Republic of Croatia will be encouraged and obstacles to the inclusion of a large number of foreign students in study programmes in the Republic of Croatia conducted in foreign languages will continue to be removed, the sustainability of accredited studies in foreign languages will be encouraged, as well as the provision of the necessary infrastructure. Measure 2, by creating an incentive model to attract students and researchers to the ICT field, i.e. by increasing the number and quality of researchers and professionals in the scientific and, consequently, business sector to strengthen the potential for innovation, will put people at the heart of the digital transformation. The new framework for the career development of scientists also includes new enabling conditions for work in science and more open access to technological infrastructures for connecting science and entrepreneurship. Measure 3 will foster non-formal education with a view to strengthening the digital competences of the workforce, and the implementation of this measure will contribute to greater solidarity and inclusiveness of employees and the unemployed in the modern labour market, in order to give every citizen an opportunity to participate in the labour market in the digital age. Measure 4, i.e. when developing research and technological infrastructure, will pay special attention to the environmental impact, with the aim of respecting the principle of sustainability. That is, it will try to implement the latest technological solutions that have the least negative impact on the environment. Finally, measure 5 on fostering greater involvement of girls in ICT will also foster solidarity and inclusiveness of women in ICT and STEM areas.

*3.1.3 Digital target 3: All end-users in a fixed location shall be covered by a gigabit network to the network termination point and all populated areas shall be covered by next generation high-speed networks with performance at least equal to 5G, in accordance with the principle of technological neutrality.*

- **National fixed VHCN network baseline: 61% of households; EU fixed VHCN network baseline: 73% of households**
  - Key indicators of 5G signal coverage in the Republic of Croatia, in accordance with defined indicators, are yet to be expected.
  - In 2022, the coverage of inhabited areas with 5G signals in the Republic of Croatia was above the EU average and was 82% (EU 81%).
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b><i>Measures contributing to the target</i></b>								
<i>Measure 1 – Providing prerequisites for spatial planning and faster network construction</i>								

Measure 2 – Regulation of the impact of property usage costs on the development of EC networks								
Measure 3 – enabling support for the development of EC networks in areas where there is insufficient commercial interest in investments								
Measure 4 – Promoting the use of services in high-speed networks								

### Budget of all measures attributable to the target

- Public investment:
  - Already spent: *185,312 million. EUR* (implementation ongoing)
- Multiannual financial framework 2014-2020
  - OP Competitiveness and Cohesion 2014-2020 - specific target 2a1 - contract grants **184.91 million. EUR** (EU part 169,57 million). Implementation of projects under the Framework National Programme for the Development of broadband infrastructure in areas where there is insufficient commercial interest in investment
- *NRRP Reform C2.3. R4: EUR 402.390 (holder OF MPGI)*
  - planned: 175.73 million. EUR
- Competitiveness and Cohesion Programme 2021-2027
  - Investments are planned in the construction of very high-capacity broadband aggregation networks and the connection of public institutions to VHCN networks, in NGA white and grey areas within the framework of the project *Construction of National broadband aggregation infrastructure and the connection of targeted public users*. The project started implementation in the 2014-2020 programming period, and the allocated allocation for the continuation of financing amounts to **50.00 million. EUR**
- NRRP 2021-2026; investments C2.3. R4-I1 and C2.3. R4-I2: **125,73 million. EUR**
  - Implementation of projects under the Framework National Programme for the Development of broadband infrastructure in areas where there is insufficient commercial interest in investment
  - Construction of passive electronic communications infrastructure
- National broadband Development Plan: EUR 12 000 (HAKOM activities)

## Response of measures to Member State specific challenges:

- **First challenge – administrative and cost barriers to the development of EC infrastructure**
  - Measure 1 is expected to contribute to improving the regulatory framework in the area of spatial planning and construction and cross-compliance where necessary, with regulations in the field of electronic communications, which will be conducive to investment in the development of very high-capacity broadband electronic communications networks. Furthermore, measure 2 will cover the issue of potential high fees for the right of way and the occurrence of the practice of determining local taxes (taxes for the use of public area for the purpose of setting up electronic communication infrastructure) as well as other possible fees by local and regional (regional) self-government units. Measure 3 will encourage the development of electronic communication infrastructure in areas where there is insufficient commercial interest in investments through the implementation of approved state aid schemes with the aim of reducing the digital divide between rural and urban areas of Croatia.
  
- **Second challenge – insufficient use of high-speed services**
  - Measure 4 is expected to have a positive impact on the increase in the use of high-speed broadband services. Given that broadband services are realized over VHCN networks, including 5G networks, the measure is also expected to have a positive impact on the use of broadband services over 5G networks. This measure, together with Measure 3, is also expected to have a positive impact on encouraging the use of broadband services with speeds of more than 1 GB/s.

## Estimated investment gap:

When evaluating smaller investments, the analysis that was used during the preparation of the NRRP was used, because the competent authorities do not have new information/analyses. The subject analysis is based on data from HAKOM and business reports of operators. At the same time, the lack of investment refers exclusively to fixed networks, which are aimed at the goals and measures of the Digital Croatia Strategy until 2030 and the National Plan for the Development of Broadband Access in the Republic of Croatia in the period from 2021 to 2027, as well as programs co-financed with funds from EU funds that are already being implemented and will be implemented in the next period.

With the synergy of all available sources of financing from different funds (RRF, ERDF, CEF), as well as estimated investment operators in commercial and non-commercial investments, smaller investments cannot be closed at this moment, especially taking into account the fact that the programming process for multi-year financial investments. framework until 2027, the EC expressed the view that investments in broadband access infrastructure are not priority investments, in accordance with Appendix D of the Report for Croatia for 2019, and the funds intended for the construction of broadband access infrastructure have not been approved. However, all activities and measures within the framework of the Digital Croatia Strategy and the National Broadband Access Development Plan, which are continuously implemented, as well as the started projects co-

financed by EU funds, have significantly encouraged private investments by operators in fixed and mobile electronic communication networks. In the coming period, the continuation of positive trends in terms of private investments is expected, which, in synergy with the implementation of projects co-financed from EU funds, will greatly contribute to reducing the investment gap.

Regarding the introduction of the 5G network in urban and rural areas and along the main land transport routes, the National Plan for the Development of Broadband Access in the Republic of Croatia in the period from 2021 to 2027 has set goals that relate exclusively to administrative measures to encourage the introduction of the 5G network in order to make their introduction easier and faster for operators. Operators have been granted licenses to use the radio frequency spectrum for 5G networks, and in order to achieve the strategic goals of covering the population, especially certain areas for which there is no commercial interest in 5G networks, operators have been prescribed coverage obligations, which are an integral part of the issued licenses for the use of RF. spectrum. According to the DESI indicator for 5G networks, Croatia is already above the EU average in terms of 5G network coverage, and we find no basis for the claim that there is less investment, and state aid interventions in this sense are not planned nor do we consider them necessary.

The methodology for calculating the estimate of investment requirements to achieve the national targets for Measure 3 shall take into account the total number of households that do not have assured availability at speeds of  $\geq 100$  Mbit/s. These households are divided into associated areas depending on the population density, which significantly affects the cost of construction. From the total number of households thus determined, all households covered by individual projects co-financed by ESI funds grants and households in areas where commercial construction of fiber optic networks is announced in accordance with the Ordinance on Fiber Optic Distribution Networks (OG 57/14). The analysis shows that most of the households observed are located in rural areas.

The highest price of FTTH construction in rural areas is determined based on experience that includes long-term monitoring of prices of performance of similar projects in the Republic of Croatia. To this price is added a certain redundancy in extremely rural areas.

Possible actions to achieve the national targets for Measure 4 will be proposed after the analysis has been carried out.

**European digital rights and principles:** The implementation of the planned measures for digital target 3 will actively promote the principles of Putting people at the centre, Solidarity and Inclusion and Sustainability. When ensuring the preconditions for faster planning and spatial construction and regulating the impact of real estate costs on the development of EC networks, special attention is placed on respecting the principle of putting people at the center and inclusiveness. Thus, implementation is expected to remove all administrative barriers, which will facilitate and accelerate the construction of very high-capacity electronic communications networks and consequently enable all users to access networks and broadband services. At the same time, administrative burdens are expected to be reduced, with a view to ensuring a level of fees that will be incentive for investment in the further development of very high-capacity electronic communications networks, especially in rural areas, in order to provide every resident with access to modern digital infrastructure. Measure 3 will also encourage the development of EC networks, especially in rural areas where there is not sufficient commercial interest in order to balance the development of EC networks throughout the territory of the Republic of Croatia. Furthermore,

when developing EC networks, special attention will be paid to the environmental impact. The implementation of the latest technologies that have minimal impact on the environment will be actively encouraged. On the other hand, Measure 4 will encourage the use of services in high-speed networks to encourage a greater number of citizens to use such services.

*3.1.4 Digital target 4: the production, in accordance with Union law on environmental sustainability, of state-of-the-art semiconductors in the Union accounts for at least 20% of the value of world production*

- **National baseline:** n/p; **EU baseline:** n/p
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b>Measures contributing to the target</b>								
<i>Measure 1 - support for the establishment of the Croatian competence Centre for semiconductors and microelectronics</i>								

**Budget of all measures attributable to the target**

- Public investment:
  - Up to EUR 1 million per year has been provided, for a period of four years under the Digital Europe 2021-2027 programme, the determination of national co-financing is under way.

**Response of measures to Member State specific challenges:**

- **First challenge – poor development of semiconductor manufacturing sector**
  - It is necessary to network the economy with science at national level through a platform that will emerge as a result of this measure. Namely, strategic guidelines for the future development of society and business redirect traditional business process patterns towards creating compositions of joint action of all stakeholders: from state institutions, the local community, to the university community and economic operators, with a view to sharing knowledge, good practices, fostering research and innovation and ultimately improving the competitiveness of the semiconductor manufacturing sector. In the coming period, Croatia will also become more familiar with the recently adopted [European chip Act in](#) order to improve its capacity in semiconductor manufacturing through the implementation of EU initiatives and cooperation with other Member States.

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European digital rights and principles:** Implementing the planned measure for target 4, grouping and networking relevant stakeholders with the aim of strengthening their competitiveness in the semiconductor market. Therefore, the implementation of this measure will contribute to promoting Solidarity and inclusiveness of relevant stakeholders in this area, in order to strengthen their joint appearance in the European and global semiconductor markets.

*3.1.5 Digital target 5: At least 10,000 climate-neutral and extremely safe edge nodes are in use in the Union, deployed in such a way that companies are guaranteed access to low latency data services (i.e. several milliseconds) wherever they are located.*

A structured system (i.e. methodology, roles and responsibilities and reporting method) has not currently been established in the Republic of Croatia for monitoring neutral and extremely safe edge nodes. Therefore, the value of the current indicator is not known during the preparation of the Roadmap. Also, for the time being, no measures are being planned that contribute to the achievement of the target in question. However, the Republic of Croatia understands the importance of achieving the digital target in question and, therefore, the establishment of a system of monitoring the number of neutral and extremely safe edge nodes is underway. Then measures will be defined that contribute to the achievement of this digital goal, and the information will be updated during the revision of the Roadmap.

*3.1.6 Digital target 6: the Union has its first quantum acceleration computer by 2025, paving the way for it to have top quantum capabilities by 2030.*

- **National baseline: 0 EU baseline: 0**
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b><i>Measures contributing to the target</i></b>								
<i>Measure 1 – Development of quantum communication infrastructure</i>								
<i>Measure 2 – Promoting the use of a supercomputer</i>								

**Budget of all measures attributable to the target**

- Public investment: EUR 9,999,334.00
  - Already allocated: 65% of EUR 4,999,667.00 based on the signed DEP call contract DIGITAL-2021-QCI-01-DEPLOY-NATIONAL – Deploying Advanced National QCI systems and networks.

The second part of the allocation foreseen for financing the measure is planned from the NRRP investment C3.2.R2-I2: in the same amount up to EUR 4,999,667,00

**Response of measures to Member State specific challenges:**

- **First challenge — insufficient investment in expert teams with specific knowledge**
  - The C3.2.R2-I2 investment in question is expected to contribute to: 1) strengthen the human capacity of researchers (young and experienced) through the work and application of state-of-the-art scientific research on the infrastructure procured under the project, 2) strengthen cooperation and spillover knowledge between the research community and industry/sector representatives in the field of quantum technologies and supercomputers.
- **Second challenge - insufficient investment in the construction of quantum infrastructure**
  - Measure 1 and 2 are expected to establish and upgrade technology and innovation infrastructure, i.e. an infrastructure network based on open innovation principles, which will directly foster the areas of quantum technologies and supercomputers, i.e. clean technologies, and the green and digital transitions.

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European Digital Rights and principles:** When developing quantum communication infrastructure, particular attention will be paid to respecting the principles of *sustainability*. The development, procurement and use of hardware infrastructure and other equipment that complies with state-of-the-art standards when it comes to environmental impacts will be encouraged. At the same time, encouraging the use of supercomputers will take care of *the Solidarity and inclusion* principle, i.e. providing access to supercomputers to researchers who need such infrastructure for research activities.

3.1.7 *Digital target 7: At least 75% of undertakings in the Union shall use one or more of the following technologies, according to their business: cloud computing services, big data, artificial intelligence.*

- **National baseline:** 35% (2021); **EU baseline:** 34% of employees (2021)
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b>Measures contributing to the target</b>								
Measure 1 – <i>introducing new regulatory solutions to facilitate business and promote the use of digital technologies</i>								
Action 2 — <i>ensuring the availability of a digital database of anonymised public data and tools enabling the development of new innovative solutions</i>								

### Budget of all measures attributable to the target

- Public investment:
  - Already spent: 7.5 million. EUR
  - Total planned: 16.6 million EUR

### Response of measures to Member State specific challenges:

- **First challenge – low level of integration of advanced digital technologies in business**
  - *Measure 1 is expected to contribute to a greater level of integration of digital technologies by introducing new regulatory solutions that will facilitate business and promote the use of digital technologies in new forms of business. This measure is particularly important when applying advanced digital technologies, such as artificial intelligence.*
- **Second challenge – There is no digital database of anonymised public data, which is an obstacle to a greater uptake of big data technologies.**
  - *Measure 2 will ensure the availability of a digital public database through a platform to serve as an open data warehouse, with analytical tools and artificial intelligence elements implemented.*

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European digital rights and principles:** When introducing new regulatory solutions, the principle of Putting people at the heart of digital transformation will be respected so that transformation benefits everyone and to improve the lives of all people. The new regulatory solutions will define clear rules for the implementation of digital technologies and new solutions, while primarily ensuring the safe and ethical implementation of such technologies. Furthermore, in ensuring the availability of a digital database of anonymised data, actively encourage the principle of Security, Protection and Empowerment. When establishing such a database, a high level of security and protection of citizens' data privacy will be ensured.

*3.1.8 Digital target 8: more than 90% of SMEs in the Union have reached at least the basic level of digital intensity*

- **National baseline:** 50% (2021); **EU baseline:** 55% of employees (2021)
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b><i>Measures contributing to the target</i></b>								



<i>Action 1 – implementation of funding for cultural and creative industries to adapt business to the Digital Single market</i>								
<i>Measure 2 – administrative burden relief for entrepreneurs, reduction of non-tax and para-fiscal charges and digitalisation of public services for entrepreneurs (G2B)</i>								
<i>Measure 3 – implementation of additional financial means to invest in the application of new technologies</i>								
<i>Measure 4 - Dissemination of the network of Digital Innovation Hubs (DIH) and European Digital Innovation Hubs (EDIH)</i>								

**Budget of all measures attributable to the target**

- Public investment:
  - Already spent: EUR 28,736,603.82
  - Total planned: 160.5 million EUR

**Response of measures to Member State specific challenges:**

- **First challenge – low level of integration of digital technologies into SME business**
  - *Measure 1 is expected to contribute to a greater level of integration of digital technologies by introducing funding for cultural and creative industries to adapt business to the Digital Single market. Furthermore, measure 3 will provide additional funding for the digitalisation of SME operations. At the same time, measure 4 will establish (E)DIH, which will improve the competitiveness of local and regional economies by encouraging innovation through digital technologies, while focusing on regional and local strengths to respond to the regional and local needs of the economy. Also, measure 4, i.e. expanding the E (DIH) network, will encourage a stronger use of digital technologies in day-to-day operations, especially SMEs.*

- **Second challenge – non-adapted legislation and administration for the application of digital technologies**

- *Measure 2 will contribute to the adaptation of legislation that directly or indirectly affects the business, development, and application of digital technology-based innovation (e.g. regulatory safe test environment) Regulatory sandbox). Furthermore, the measure in question will ensure the availability of digital public administration services for entrepreneurs, which will encourage a greater uptake of digital technologies into business and at the same time reduce the administrative burden on business.*

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European digital rights and principles:** The implementation of additional funding for cultural and creative industries will encourage the inclusion of entrepreneurs from this sector in the digital market. It is expected that the measure will strengthen and encourage the application of digital technologies in all sectors and provide for entrepreneurship the necessary preconditions for digitalization of business and active use and development of new technology. The administrative relief of entrepreneurs, the reduction of non-tax and parafiscal benefits and the digitalisation of public services for entrepreneurs (G2B) will encourage the inclusion of a wide range of SMEs to further create an enabling and competitive business environment that encourages the use of digital technologies. This will contribute to respecting the principles of Encouraging participation in the digital public space and Solidarity and Inclusion. Furthermore, the implementation of additional financial resources to invest in the application of new technologies will foster the principle of Solidarity in Inclusion. The application of digital technologies in all sectors will be strengthened and encouraged and the necessary preconditions for digitalization of business and active use and development of new technology will be provided for entrepreneurship. The expansion of the network of (E)DIHs will stimulate innovative and smart economic transformation, which will ensure the involvement of a significant number of entrepreneurs in digital transformation.

*3.1.9 Digital target 9: the Union facilitates the growth of its innovative scale-up (growth) companies and improves their access to finance, which will at least double the number of unicorns in Europe*

- **National baseline:** 2 (2022); **EU baseline:** 179 (2022)
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b><i>Measures contributing to the target</i></b>								
<i>Measure 1 – joining the EDICS of the Republic of Croatia</i>								
<i>Measure 2 - Diversification of capital markets and improvement of access to alternative financing</i>								

## Budget of all measures attributable to the target

- Public investment:
  - Total planned: EUR 29,862,225

## Response of measures to Member State specific challenges:

- **First challenge – poor development of research and innovation infrastructure**
  - Measure 1 will support the accession of the Republic of Croatia to EDICS with the aim of achieving synergistic impact in innovation and research through cooperation between the private and public sector and academia. At the same time, measure 2 will establish a clear legal framework for crowdfunding investments and improve the conditions for raising funds for new private (equity/quasi-equity) equity funds.

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European digital rights and principles:** By expanding the network of (E)DIhs and joining The Republic of Croatia's EDIC projects, cooperation between the public and private sectors and the digital transformation of companies and the introduction of advanced technologies will be encouraged. This measure will actively promote the principle of Solidarity and Inclusion, so that as many companies as possible can participate in the digital transformation of the economy. Diversification of capital markets will also encourage the involvement of as many investors as possible, especially when it comes to fast-growing and high-tech companies, in the innovation ecosystem. At the same time, a larger number of companies will be involved in venture capital funding, which will increase their chances of becoming unicorns.

*3.1.10 Digital target 10: 100% of critical public services are available online and, where relevant, citizens and businesses in the Union are able to interact with public administrations online.*

- **National baseline:** 69 points for services for citizens and 68 points for services for entrepreneurs (2021); **EU baseline:** 75 points for services for citizens and 82 points for services for entrepreneurs (2021)
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b>Measures contributing to the target</b>								
<i>Measure 1 – improvement of the State information infrastructure</i>								
<i>Measure 2 – applying the e-Service Standard, continuous digitalisation</i>								

<i>of public services for citizens</i>								
<i>Measure 3 – Strengthening human capacities and training of digital competency officers</i>								
<i>Measure 4 – establishment of a centralised customer support system for all e-services</i>								
<i>Action 5 – Creation of a digital mobile platform</i>								

#### **Budget of all measures attributable to the target**

- Public investment:
  - Already spent: 19.6 million. EUR
  - Total allocated: 124.5 million. EUR

#### **Response of measures to Member State specific challenges:**

- **First challenge – unconsolidated state digital infrastructure and weak level of interoperability of public administration**
  - Measure 1 plans to invest in the consolidation and upgrade of the state information infrastructure with advanced software solutions. The improved state information infrastructure system will contribute to the standardization of digital services and the efficiency of providing them, the rationalization of the costs of the entire ICT system of public administration, as well as the reduction of electricity consumption and thus environmental pollution. The measure will establish a shared services Centre and enable the interoperability of state information infrastructure to be achieved, which will ultimately improve efficiency and effectiveness in the provision of electronic public services to citizens and businesses.
- **The second challenge – the non-standardisation of certain public electronic services**
  - Measure 2 plans the implementation of eStandards that ensure uniformity of e-services in the country, accessibility, and ease of use for the user himself, and the minimum level of quality and accessibility to be achieved during the development and upgrade of the electronic service. With the proposed conclusion, public sector bodies are obliged to ensure the use of standards when developing new and upgrading existing e-services, while the Central State Office for Digital Society Development will provide advice, education, supervision and control of the implementation of standards. The establishment of the information system will support all processes and forms defined

within the e. Standards to provide a clear picture of the status of development and improvement of e-services.

▪ **Third challenge — insufficient digital competences of public law officials**

- Measure 3 will ensure the introduction of a competence model in order to redefine the knowledge and competencies necessary for performing the tasks in the public administration, with new training programmes for the development of digital competencies. At the same time, in cooperation with the State school of public Administration, civil servants of public law bodies will be educated with the aim of developing their digital competences for performing public services in the digital environment.

• **Fourth challenge — lack of harmonisation of customer support approach for all electronic public administration services**

- Measure 4 plans the establishment of a centralised customer support system for all public electronic services, which will enable users to obtain the necessary information better and faster and, with the aim of continuously improving the electronic services of public administration, enable them to assess the quality of interaction with the public administration.

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European Digital Rights and principles:** State information infrastructure will be improved, and special attention will be paid to the implementation of projects in a way that reduces their impact on the environment and society. When implementing the planned measures for the digitalisation of all public services, the principles of *Solidarity and inclusion* and *security, protection and empowerment* will be encouraged. By digitising all public services, every citizen will always have access to public services and from every place. Furthermore, by applying the e-services Development Standard, they will be easily accessible to all groups of citizens. The design of public services and other public websites will be tailored to people with various difficulties, such as difficulties in reading and recognising colours. At the same time, special attention will be paid to the protection of citizens' personal data, as well as to the entire state information infrastructure. Furthermore, the establishment of a centralised customer support system for all e-services will also facilitate the use of digital public services, in particular for people with weaker digital competences. On the other hand, the creation of a digital mobile platform will facilitate access to digital public services while respecting all levels of security. An NIAS programme is in place that allows secure use of digital public services via a mobile platform or web browser.

*3.1.11 Digital target 11: 100% of Union citizens have access to their electronic health records*

- **National baseline:** 100%

All citizens of the Republic of Croatia have access to their electronic health records. Therefore, no measures are planned to contribute to the achievement of the digital target in question.

EKartono - Health Portal for patients has been introduced.

The patient's central electronic health record, i.e. Ecarton, is a consolidated and structured set of personal health data about the patient, collected and stored in the Central information Health system – CEZIH, to which only authorized physicians who participate in the treatment of the patient have access and for which the patient has given consent. Data are collected through well-established services, such as eReceipt or eUser, through a protected virtual private network, and maximum security is guaranteed by a wide range of safeguards, including encrypted data traffic and smart identification cards through which authorised healthcare professionals access the system. Health care professionals can also use the Ecarton mobile application that health care professionals can use via their mobile devices using the appropriate National identification and Authentication system (NIAS) credentials suitable for use on mobile devices.

An important part of the upgrading of functionality is communication with patients through the health portal for patients which actively involves patients in the health system and easily covers medical and administrative data in digital form and ultimately relieves healthcare professionals of part of the administrative work. Through the patient Health Portal, accessible via the e-citizens system, patients can see all their prescribed and issued medicines and findings and additionally independently manage access rights and protect their privacy and can also see details about who and when accessed certain parts of eCarton. There is also a mobile application Portal of Health that patients can use via their mobile devices using appropriate National identification and Authentication system (NIAS) credentials suitable for use on mobile devices.

*3.1.12 Digital target 12: 100% of Union citizens have access to secure electronic identification means (Eid) recognised throughout the Union, allowing them to fully control transactions involving their identity and personal data they share*

- **National baseline:**
  - At least one national Eid scheme reported in accordance with Regulation (EU) 910/2014 – 1 (2023)
  - Digital wallet issued in accordance with the proposal for Regulation (EU) No 910/2014 establishing a European Digital identity Framework – n/p
- **Total timeline:**

	2023	2024	2025	2026	2027	2028	2029	2030
<b>Measures contributing to the target</b>								
Measure 1 – introduction of a digital identity card								

**Budget of all measures attributable to the target**

- Public investment:
  - Total planned: 0.9 million EUR

**Estimated investment gap:** During the development of this document, no investment gap was identified for the digital target concerned in order to achieve it. Future revisions of the document will indicate a potential investment gap, if identified.

**European Digital Rights and Principles:** The implementation of the planned measures for the introduction of a digital ID card will encourage the principles of Solidarity and Inclusion and Security, Protection and Empowerment. This measure will allow all citizens to use the digital ID card and all its functionalities. At the same time, special attention will be paid to the protection of personal data of citizens.

## 3.2 Description of measures

### 3.2.1 Measure 1.1 – continuous development of citizens' digital competences through targeted education and training<sup>5</sup>

<b>New measure</b>	No – SDH 2032 Priority area of public policy implementation 4.2: developing citizens' digital competences for life and work using ICT
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The level of digital competencies of the Croatian population is, according to several key indicators, above the EU-27 average. However, despite good indicators at EU level, continuous work is needed to develop the digital competences of all citizens for life in the digital age, with a particular focus on competences for the safe use of ICT in everyday life. When adopting policies for the development of citizens' digital competences, i.e. encouraging targeted education, and training for the formation and strengthening of digital literacy, special attention will be paid to older people, persons with disabilities and others who find a lower level of digital literacy. In designing educational programmes, the use of the European Digital competence Framework for citizens DigComp 2.2 will be encouraged. Furthermore, the capacity development of civil society organisations with a view to their involvement in the process of developing citizens' digital competences, i.e. STEM competences of children, will continue to be encouraged.</p> <p><i>Link to target:</i></p> <p>The measure focuses on the development of citizens' digital competences with a weaker level of digital literacy, such as older people. Targeted education and training is expected to directly contribute to achieving the EU digital goal of at least 80% of people aged 16-74 having at least basic digital skills.</p> <p><i>Tentative timeline:</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	<p>National (budget planned): 10 million. EUR</p> <ul style="list-style-type: none"> <li>○ 25% of the funds planned in SDH 2032 Priority area of public policy implementation 4.2: developing citizens' digital competences for life and work using ICT</li> </ul>
<b>Expected impact</b>	<i>Not known</i>

<sup>5</sup>Digital objective 1: at least 80% of people aged 16-74 have at least basic digital skills

3.2.2 Measure 1.2 — developing the competences of the workforce for the application of digital technologies<sup>6</sup>

<b>New measure</b>	No - NRRP: C4.1. R3 establishment of a system of vouchers for the education of employed and unemployed persons, C4.1. R3-I1 implementation of a system of vouchers for the education of employed and unemployed persons
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>Digital technology brings novelties in performing a wide range of jobs, and it is expected that the demand for professionals in digitalised traditional and creative professions will continue to grow in the future. In order to achieve all the benefits of the digital transformation and increase competitiveness and value of work, it is necessary to work on developing the competences of the workforce for the application of digital technologies and professions to adapt to the needs of the digital environment.</p> <p>Education programmes will have to be continuously aligned with labour market needs in order for learners to acquire skills that make them competitive in a very changing labour market. It also foresees the development of a new model and the introduction of individual educational accounts to enable each person to participate in lifelong learning and skills acquisition. Through formal and informal education programmes, developed using the instruments of the Croatian qualifications Framework by awarding a voucher for lifelong learning, it will ensure the acquisition of digital competences necessary for work for the employed and unemployed, of which vulnerable groups such as young people or long-term unemployed people could have special benefits. This will make it easier to find a job, keep it, or progress on it.</p> <p>At the same time, higher education institutions will be encouraged to carry out shorter training programmes for lifelong learning purposes that will raise and restore the digital competences needed for the labour market and the development of the economy. In addition, the employment measure and the legal framework for the modern labour market and the economy of the future will be improved and active employment policy measures will continue to be developed, with a particular focus on the inclusion and preparation of the long-term unemployed for digital transition jobs. The adoption of new competences will make it possible to increase employment and better match labour market supply and demand.</p> <p><i>Link to target:</i></p> <p>The measure is aimed at developing the digital competences of employed and unemployed persons from non-it professions. The measure in question should particularly benefit persons whose current competences are not aligned with labour market needs and the development of targeted digital competences will also contribute</p>

<sup>6</sup>Digital objective 1: at least 80% of people aged 16-74 have at least basic digital skills



	<p>to the development of basic digital skills which are the basis for further upgrading in line with the workplace context.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Labour, Pension System, Family, and Social Policy</p>
<b>Budget and resources required</b>	<ul style="list-style-type: none"> <li>• NRRP: EUR 36,480,000 (C4.1. R3-I1 for Digital skills)</li> <li>• 18 million were provided under the ESF +. EUR for digital programmes</li> <li>• Also, regarding the necessary human resources, employees of the MROSP (Directorate for Labour market and Employment) and employees in central and regional offices of the Croatian Employment Service are involved in the implementation of the education voucher system. In the central office, 5 (out of 7) advisers from the Department of Professional guidance and Education were involved in the process of the voucher allocation system. Advisers of the Department/Department for Professional guidance and Education from Regional departments/offices are working on the processing of applications for the award of vouchers. Since the establishment of the system, 4 consultants for professional guidance from regional offices and 2 from regional offices have been involved in the process – a total of 52 consultants. Currently, these resources are sufficient and other departments will be involved if necessary.</li> </ul>
<b>Expected impact</b>	<ul style="list-style-type: none"> <li>• The NRRP measure envisions the inclusion of 20,000 people by 2030.</li> </ul>

### 3.2.3 Measure 1.3 – Digital maturation of primary and secondary education systems<sup>7</sup>

<b>New measure</b>	<p>NRRP: C3.1. R1 Structural Reform of the Education system; National Plan for the Development of the Education system by 2027: measure 10.1. Training educational institutions for conducting mixed/hybrid forms of instruction, measure 10.2. Continuously develop digital competences, measure 10.3. Unify the equipment of schools and encourage research and experimentation of the application of digital technologies in learning and teaching, measure 10.4. Establish a digital education platform</p>
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The adoption of digital competences of pupils depends on the level of digital competencies of teachers. The process of developing and strengthening digital competences of educators is a continuous process that has already begun and that requires the continuation of these activities. The new model of teacher training was adopted in 2019 and rewards teaching success, innovation, and the development of open</p>

<sup>7</sup>Digital objective 1: at least 80% of people aged 16-74 have at least basic digital skills

digital education. As part of this intervention, further development of digital competencies of teachers in primary and secondary education will be encouraged. Digital education programmes for teachers and students will include the competences of critical information analysis, digital storytelling, the use of digital audio-visual production devices and equipment, and software for processing, editing, and distributing multimedia content on the internet. It will encourage the advancement of innovative learning and teaching methods, the efficient, balanced, and appropriate use of digital technologies and tools in the school's teaching and business process.

Through the e-schools project, co-financed by EU funds (operational Programme efficient human resources 2014-2020 The European Social Fund and the operational Programme Competitiveness and Cohesion 2014-2020, the European Regional Development Fund), which ended in September 2023, will digitally transform teaching and business processes in all schools in Croatia financed from the state budget. Through the project in question, a purposeful, reliable, and secure ICT environment adapted to the needs of schools has been provided, the efficiency and coherence of the process in the education system has been improved, digital competences have been enhanced that contribute to the digital maturity of schools and strategic leadership of schools for raising their digital maturity has been improved. The e-schools project ultimately significantly contributed to ensuring a level playing field for digital education in all schools in the Republic of Croatia. After the completion of the e-schools project, the focus of investment will be on the maintenance of information infrastructure and supporting equipment, with continuous upgrading of the functionality of existing elements of the ICT system in education, and it is necessary to continue investments in the core network and computer e-infrastructure of the system of science and education. During the implementation of the investments concerned, particular attention will be paid to ensuring a level playing field for digital education in all primary and secondary schools.

Activities are planned to equip schools to ensure equivalent opportunities for innovation development and the efficient application of digital technologies in the learning and teaching process, and to enable equal access to infrastructure and its services for each school. Provide institutions with constant support in maintaining and updating computer equipment. Encourage research and experimentation on the use of digital technologies in learning and teaching in teaching and extracurricular activities in order to develop knowledge and skills and guide learners towards new areas open by digital technology so that they can properly understand their importance and prepare them for future work, study or lifelong learning on them; (artificial intelligence, 3D printing, Internet-of-things/IoT/and similar technologies). Also, the possibilities of educational institutions for performing and participating in mixed/hybrid forms of teaching will be improved by developing educational content, with the aim of encouraging innovation, facilitating and more efficient inclusion of vulnerable groups/groups with special educational needs, improving the teaching staff, teaching, and extracurricular programmes in primary and secondary schools regardless of regional distribution and development.

**Digital teacher education programmes** will include the development of team project learning competences, critical information analysis, digital storytelling, programming,

and the design, processing and distribution of multimedia content online. As part of the measure, the development of digital competences in the primary and secondary education system will be encouraged for the effective application of digital technologies and tools in the school's teaching and business process. The digital competences of higher education teachers for teaching in the digital environment will also be strengthened in order to improve innovative learning and teaching methods, as well as the effective use of digital technologies and tools with continuous awareness and education on cyber security. Teachers at all levels of education will be supported in finding, learning, and using new and innovative education-oriented computer applications and tools, taking into account the importance of education, research, development, critical approach, interdisciplinary learning and teaching and enhancing cyber security awareness.

In this regard, the project **Strengthening the competences of educators** worth 43 million. The EUR relies on reform processes under the ESF + through strengthening THE capacity OF THE AZOO in the field of continuous professional training of system stakeholders and educational workers.

The preparatory activities of the project **support for the application of digital technologies in Education (brain) are also under way**. The specific targets of the project are I) the development of curricula and educational programme and the research continuously guide and monitor the impact of digital technologies on education with the aim of raising the digital competences of pupils and teachers; II) develop a system of smart recommendations that will give better insight into learners' achievements and contribute to a personalised approach to the development of each learner; Education in the part of the element of smart recommendations includes education regarding the use of smart recommendations for key stakeholders in the education system of the Republic of Croatia (such as employees of the Ministry of Science and Education as policy makers in the education system of the Republic of Croatia) and regarding the use of smart recommendations for end users such as principals and professional associates in schools, pupils and parents. III) ensure a high availability of digitalised education services through a more efficient, accessible, and sustainable network management and cyber security through an automated monitoring and management system. The value of the project is €15,000,000.00, and the indicator is the number of experts who have completed their professional training (i.e. 107).

Furthermore, through the completed **e-enrolment Project**, existing and developed new complex vertical e-services related to the process of enrolment in the entire educational vertical have been improved and the level of competencies of public administration employees and users of its e-services in the use of improved and newly developed services has been raised. The project is worth €5,309,180.39, and the relevant project indicators: the number of employees who participated in training to improve their professional competencies is 1000. The project started in 2019 and ended in 2023. The continuation of this project is the project **complete informatization of the education system (CISOO)** worth €8 million. The project includes the upgrading of parts of the system developed through e-registrations and the development of new modules that enable the further improvement of complex electronic services, as well as the creation of digital records of issued final documents.

**Support for achieving equal opportunities in education for students with developmental disabilities the project “ATTEND”**, which ends in 2023, is worth 3.529.412.00 EUR. The purpose of the project is to contribute to improving education of children with developmental disabilities by providing access to special auxiliary technology, as well as adequate and efficient use of technology in educational activities of children with developmental disabilities through the following activities: I) equipping the participating institutions with assistive technology, II) educating the educational staff of participating institutions, III) raising awareness of the challenges in the educational system related to creating equal opportunities for children with developmental disabilities.

As part of the e-University project, it is planned to establish a **digital education platform**, a technological platform for access to applications and content, communication, and process automation with the purpose of accelerating the digital transformation of the VU education system, better user experience, saving time with automatic data exchange and open to all stakeholders. Centralised accommodation of services and content, as well as modern architecture in accordance with state-of-the-art technological solutions, will enable the development and high availability (reliability and speed) of better-quality services, while reducing maintenance costs at the level of the entire education system.

A positive feature of the Croatian vocational education system is the possibility of vertical permeability, which is also a challenge for this part of the system that needs to be better adapted to the permeability towards higher education in the future. However, a broader socio-economic approach and consensus are needed to successfully integrate more pupils into the labour market after the completion of four-year vocational programmes. In this regard, the project “**further implementation of curriculum reforms in vocational education and training through increasing the relevance of VET**” with regard to labour market needs will support the development, improvement and evaluation of curriculum documents (sectoral curriculum, vocational curriculum and curriculum of institutions) according to the methodology of CROQF, vocational schools in the implementation of curriculum documents development and revision of educational materials in digital and printed form and through strengthening the competences of educational professionals of vocational subjects. In conclusion, **supporting regional competence centres (RCK phase II project) will continue to improve the quality and competitiveness of local/regional vocational education and training and networking RCKS with similar institutions at EU level.**

*Link to target:*

The purpose of integrating digital technologies into educational processes is to support and facilitate the work of educational professionals and improve the learning experience of pupils and students. However, the creation of a digitally mature education system will ensure that children develop at least basic digital competences, which they will then apply in their daily lives.

*Tentative timeline*

by the 4th quarter of 2027

*Responsible authority:*

	Ministry of Science and Education, Agency for Vocational Education and adult Education, Agency for Science and higher Education, Agency for Education and Education, CARNET
<b>Budget</b>	<p>50% of the planned funding (€232.9 million) will be provided in the National Plan for the Development of the Education system by 2027, Special target 10: Continue the process of computerisation and application of digital technologies in the education system – 116.5 million. EUR, of which 75 million EUR provided for:</p> <ul style="list-style-type: none"> <li>○ project Strengthening the competences of educators worth 43 million. EUR (which is part of specific target 2)</li> <li>○ Support for the application of digital technologies in education (brain) worth €15,000,000.00,</li> <li>○ Complete computerisation of the education system (CISOO) worth EUR 8 million.</li> <li>○ For e-registrations, total project budget – 5.3 million. €4.3 million spent to date. EUR</li> <li>○ the project “ATTEND” is worth 3.529.412.00 EUR</li> </ul>
<b>Expected impact</b>	Given the fact that some projects are still in the programming phase, information regarding the impact of the measure will be provided during the revision of this document.

### 3.2.4 Measure 1.4 – Modernisation of higher education for the digital age<sup>8</sup>

<b>New measure</b>	Non - NRRP: Investment C3.1. R2-I1 Digital transformation of higher education
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The digital transformation of education implies the modernisation of higher education for the digital age. <b>The project of building the Croatian Science and Education Cloud (HR-ZOO)</b> was completed in the first half of 2023, enabling a new generation of private e-infrastructure of the science and higher education system in the Republic of Croatia and following good practices of other EU countries. However, there is a lack and uneven equipping of higher education institutions for quality higher education, which makes it necessary to invest effectively in the digital transformation of higher education institutions, for which digital teaching infrastructure, digital teaching tools and the strengthening of teachers' competences for teaching in the digital environment are prerequisites.</p> <p><b>The e-University project</b> funded by the NRRP will improve the digital transformation of higher education institutions that includes investments in infrastructure and teacher competencies. It will also encourage the development of open digital teaching resources</p>

<sup>8</sup>Digital objective 1: at least 80% of people aged 16-74 have at least basic digital skills.

	<p>with the acquisition of active equipment and the improvement of passive network that will support new technologies and digital teaching resources.</p> <p>Development of quality digital educational content for higher education requires an individualised approach in accordance with strategic determinants and development needs of higher education institutions. For these reasons, it is necessary to equip higher education institutions in a broader sense with appropriate equipment for developing their own digital educational content in video format. In addition to equipment, education for content development, tools and storage will be provided, i.e. permanent availability of developed content. The development of digital educational content was conceived as an incentive to a mixed form of teaching, i.e. as an added value to classical teaching.</p> <p>Furthermore, a system of digital maturity of Croatian higher education institutions will be established and recommendations for necessary investments and development activities will be made which will be the basis for further investments in equipping higher education institutions and expanding support for institutions, teachers, and students in online and distance learning. Elements of infrastructure investments that will support new technologies and digital teaching resources include ensuring access to the network, which is in line with new technological solutions and tailored to users' needs, and educational sources for employees and students with reliable fast connection, as well as equipping lectures with the equipment necessary for teaching in the digital environment. Investing in the infrastructure and ICT equipment of higher education institutions and fostering further digital transformation of higher education in accordance with the needs of digitalisation of society will also contribute to improving the quality, relevance, and accessibility of higher education.</p> <p><i>Link to target:</i></p> <p><i>The purpose of the measure is to provide digital infrastructure for the higher education system, and to encourage the development of digital competencies of teachers and thus students. Therefore, the implementation of the measure will affect the development of at least basic as well as at a level above the basic digital competences of the stakeholders of the higher education system.</i></p> <p><i>Tentative timeline</i></p> <p><i>3/2022. – 12/2025</i></p> <p><i>Responsible authority:</i></p> <p>Ministry of Science and Education and Croatian academic and Research Network – CARNET</p>
<b>Budget</b>	<p><i>Investment C3.1. R2-I1 (NRRP): through e-University project 83.9 million. EUR, representing around 40% of the planned funding (EUR 232.9 million) in the National Plan for the Development of the Education system by 2027 for specific target 10: Continue the process of computerisation and application of digital technologies in the education system</i></p>

<b>Expected impact</b>	<i>It is expected that through the e-University project up to Q2/2026 90% of public higher education institutions will be equipped with digital infrastructure, which includes strengthening the digital competencies of teachers and teaching staff and students, concrete information about impact will be enclosed during the revision of this document.</i>
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3.2.5 Measure 2.1 — increasing the number of ICT professionals<sup>9</sup>

<b>New measure</b>	No – NRRP: C3.1. R2 Modernisation of higher education, C3.2. R2-I1 Development of an enabling model for career advancement for researchers and conducting state-of-the-art scientific research in STEM and ICT fields; SDH 2032 Priority area of public policy implementation 4.1: increasing the number of ICT professionals in the labour market
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>It is necessary to increase the number of ICT professionals who acquire ICT qualification or complete lifelong learning programmes in ICT carried out by higher education institutions and adult education institutions and enter the labour market. The digital transformation of Croatian society and the entire economy opens up room for more intensive investment in strengthening capacities of Croatian higher education institutions, secondary schools and adult education institutions.</p> <p>1. As part of the programme agreements on financing public higher education institutions, the who will encourage the completion of studies in STEM and ICT, the launch of new study programmes as well as the redefinition of quotas on accredited study programmes in the field of technical sciences, computer sciences and social sciences in the field of information sciences.</p> <p>The final decision is made by higher education institutions in accordance with their autonomy.</p> <p>In doing so, it is necessary to ensure the preconditions for their performance – encouraging employment and retention of the teaching it staff and strengthening the infrastructure of higher education.</p> <p>NRRP investments will encourage an increase in the number of ICT specialists through scholarships for entry into STEM and ICT study programmes, i.e. studies that have the greatest perspective of generating economic growth and will also create infrastructure preconditions for launching study programmes with a strong digital component in line with labour market needs.</p> <p>At the same time, higher education institutions will be encouraged to establish and implement shorter training programmes for lifelong learning purposes that will raise and restore the skills needed for the labour market and the development of the economy in priority areas, including green and digital skills.</p> <p>However, an additional challenge for increasing enrolment quotas is the fact that most pupils in Croatia complete secondary vocational education, which is above the EU average, but during secondary education they did not acquire all the learning outcomes</p>

<sup>9</sup>Digital objective 2: at least 20 million ICT professionals are employed in the Union, promoting women's access to the field and increasing the number of ICT graduates

	<p>necessary for successful advancement in several years of study. Furthermore, the Republic of Croatia also faces a demographic challenge related to the reduction of the total number of students in secondary schools. Therefore, an increase in the number of students enrolled in high school programmes will be encouraged from the existing 30% to 40%, with an emphasis on STEM directions. The allocation of STEM and ICT scholarships for undergraduate and graduate students will aim to further increase the number of ICT specialists.</p> <p>At the same time, this measure will increase the level of internationalisation of higher education in line with modern European trends by improving the quality of higher education and compliance with labour market and social needs. Special attention will be paid to the sustainability of foreign language studies and the removal of obstacles to attracting foreign students to foreign language studies for qualification in the Republic of Croatia.</p> <p>The “Resolution on a strategic framework for cooperation in education and training towards the European Education area and beyond (2021-2030)” sets out guidelines for empowering European higher education as part of intensive and long-term cooperation between alliances of higher education institutions sharing their human and material resources. This establishes contemporary centres of scientific excellence and quality higher education where European students with the experience of studying in several different countries are studied. European universities acquire European qualifications that are automatically recognised in other EU Member States.</p> <p><i>Link to target:</i></p> <p>Increasing the number of enrolled pupils and students to existing education and study programmes in the field of ICT and encouraging the opening of new programmes in the area concerned, along with the provided infrastructure and teaching resources, will directly affect the increase in the number of ICT professionals. Furthermore, this measure will increase the level of internationalization of higher education in accordance with modern European trends and with the needs of the labour market and society, which will contribute to attracting foreign, but also to maintaining existing, ICT experts in the Republic of Croatia.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2026.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Science and Education in cooperation with the academic community and other competent bodies</p>
<b>Budget</b>	<p>National: 30 million. EUR</p> <ul style="list-style-type: none"> <li>○ NRRP C3.2. R2-I1 Development of an incentive model for career advancement of researchers and conducting cutting-edge scientific research</li> </ul>



	<p>in STEM and ICT fields: 12 million. EUR (STEM and ICT scholarships for the period 2022-2025</p> <ul style="list-style-type: none"> <li>○ The rest of the 18 million. The EUR is intended to redefine enrolment quotas and carry out professional short studies in ICT areas. (as foreseen in NRRP measure: C3.1. R2 Modernisation of higher education</li> </ul>
<b>Expected impact</b>	Not known

3.2.6 *Measure 2.2 — Creating an enabling framework to attract researchers to STEM and ICT areas<sup>10</sup>*

<b>New measure</b>	No – NRRP: C3.2. R2 Creating a framework for attracting students and researchers in STEM and ICT fields, C3.2. R2-I1 Development of an enabling model for career advancement for researchers and conducting cutting-edge scientific research in STEM and ICT fields
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The measure consists in creating a new legislative framework to create better conditions and an enabling environment for researchers' career development in the fields of life sciences, technology, engineering, and mathematics (STEM), as well as social sciences and humanities important to strengthen innovation in new technologies. The new Act on Scientific activity and higher Education will make it possible to attract and retain young, as well as experienced Croatian researchers, and to attract quality scientists from the EU and the world (including the diaspora). Such a framework is a prerequisite for strengthening the capacity to conduct cutting-edge scientific research aimed at innovation and the creation of strong and competitive research groups led by excellent scientists. Innovation activities of researchers include work on technology transfer and applied research, without compromising the continuation of academic career. An institutional and personal motivational framework for stronger development and systematic protection of intellectual property will be created.</p> <p>Also, a programme for strengthening scientific capacities will be implemented. The reform will allow more attractive jobs to be created in the scientific research sector. The establishment of career development tools will enable the retention and attraction of talented researchers (especially young researchers) with a focus on STEM and ICT areas. With this reform, the Ministry of Science and Education will, through various incentive schemes for young researchers (e.g. start-ups, international mobility, business mobility, etc.), be given the opportunity to implement various instruments for the quality guidance of its human resources development strategies.</p> <p><i>Link to target:</i></p>

<sup>10</sup>Digital objective 2: at least 20 million ICT professionals are employed in the Union, promoting women's access to the field and increasing the number of ICT graduates

	<p>The new framework for the development of researchers' careers aims to increase the number and quality of researchers and experts in the scientific and, consequently, business sectors to strengthen the potential for innovation. The new framework for the career development of scientists also includes new enabling conditions for work in science and more open access to technological infrastructures for connecting science and entrepreneurship.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented by the end of 2027</p> <p><i>Responsible authority:</i></p> <p>Ministry of Science and Education in cooperation with the academic community and other competent bodies</p>
<b>Budget</b>	<p>National (planned): 70 million. EUR</p> <ul style="list-style-type: none"> <li>○ NRRP C3.2. R2- I1: 38.5 million. EUR</li> <li>○ The funds were also planned through the PKK 21-27: 31.5 m. EUR</li> </ul>
<b>Expected impact</b>	<p><i>by Q1 2025, 3 354 grants had been awarded under the programming framework to increase the accessibility and employability of STEM/ICT graduates and improve their mobility for national and international cooperation.</i></p>

3.2.7 *Measure 2.3 — Promoting non-formal education and retraining of adults to acquire ICT skills of employees, the unemployed including vulnerable groups<sup>11</sup>*

<b>New measure</b>	<p>No – NRRP: C3.1. R1 Structural Reform of the Education system. National Plan for the Development of the Education system by 2027 - measure 4.1. Develop adult education programmes and develop and implement validation programmes for non-formal and informal learning outcomes to improve adult skills and competences, measure 4.2. Continue the development of quality assurance systems in adult education, measure 4.5. Promote lifelong learning and a series of activities aimed at the general population in order to raise awareness of the importance of lifelong learning.</p>
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>At the level of adult learning, the aim is to increase the share of adults involved in lifelong learning by strengthening system quality assurance and concentrating investment in labour market relevant programmes. This measure contributes to the achievement of the target under the European Pillar of Social Rights (the proportion of adults aged 25-64 enrolled in lifelong learning is 15%).</p> <p>Through formal and informal education programmes, developed using the instruments of the Croatian qualifications Framework by awarding a voucher for lifelong learning, the</p>

<sup>11</sup>Digital objective 2: at least 20 million ICT professionals are employed in the Union, promoting women's access to the field and increasing the number of ICT graduates

	<p>acquisition of digital competencies necessary for performing the job of ICT professionals, for the employed and unemployed, which could benefit vulnerable groups such as young people or long-term unemployed persons. In order to ensure compliance of informal programmes with the CROQF and labour market needs, the ministry responsible for work shall adopt Guidelines for the development of informal programmes for adult education.</p> <p>It is also envisaged to introduce a system of self-evaluation and external evaluation of the work of institutions, as well as the recognition of informal and informally acquired knowledge and skills. This will contribute to increasing the availability of adult education with the aim of increasing the coverage of adults in lifelong learning compared to the EU average. Higher education institutions will also establish additional training programmes for the purpose of lifelong learning in order to enable training of experts for deficient professions, i.e. ICT specialists.</p> <p>At the same time, the implementation of the adult retraining programme will be encouraged, in line with labour market needs. Therefore, one of the priority areas of reskilling will be reskilling for ICT professionals. The retraining system is currently being developed and therefore this measure will be further developed during the revision of this document.</p> <p>Link to target: Raising the level of key competences and new knowledge and skills and recognising non-formal and informally acquired knowledge and skills will enable citizens to access and progress on the labour market, as well as to engage in further education.</p> <p><i>Tentative timeline</i> 1/2021.-12/2029.</p> <p><i>Responsible authority:</i> Ministry of Science and Education and Ministry of Labour, Pension System, Family and Social Policy</p>
<b>Budget</b>	ESF + finance the implementation of informal adult education programmes for the acquisition of competencies necessary for work in the amount of ca. 2 million. EUR.
<b>Expected impact</b>	Funding for non-formal education programmes has not yet started. Therefore, while it is estimated that there will be an interest, it is not yet possible to estimate the number of persons involved in the implementation of this measure.

3.2.8 Measure 2.4 — Development of research and technological infrastructure<sup>12</sup>

<b>New measure</b>	Non - C3.2. R2-I2 Investing in research and technological infrastructure in STEM and ICT areas
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The aim is to support the digital transformation process through investments in strategic technological infrastructure projects for applied and targeted research, enable young researchers to develop careers in cooperation with the business sector and experienced researchers of the platform for cooperation on innovation activities.</p> <p>Financing of the strategic network of scientific and technological and innovation infrastructure (documentation preparation and infrastructure investments) is planned. This investment will finance scientific and technological and innovation infrastructure of strategic importance and great research potential for STEM and ICT areas, which directly contributes to strengthening human capacities for top scientific research and cooperation with business sector. Technology and innovation infrastructure will be established and upgraded, i.e. a network of infrastructure based on open innovation principles, which will directly foster clean technology areas and the green and digital transitions. Research and technology organisations play a key role in regional and national innovation systems with basic responsibility for technological upgrades.</p> <p>The creation of a network of scientific and technological infrastructure will contribute to better linking scientific organizations in the process of discovering new insights in R &amp; D &amp; I activities with the economy, education, and development of society as a whole. The network of scientific and technological infrastructure will be based on a mapping carried out through the research infrastructure development plan 2023-2027, in accordance with the S3 strategy. The Plan also respects the previously developed infrastructure and sets standards for its management, use, level of openness and cooperation with the business sector. The network will enable the opening and use of scientific and technological infrastructure for technology transfer, development of new technologies, contractual research, innovation, and high-tech entrepreneurship. The network will open opportunities for scientists to work towards innovation and enable efficient synergies between the public sector, scientific institutions, and business sector in line with the smart specialisation Strategy. In order to create such infrastructure in Croatia, it is important to introduce a new type of organization into the new Act on Scientific activity in higher Education. The estimated cost of new scientific and technological infrastructure is based on the inventory of projects of the Ministry of Science and technology and similar investments implemented, which will be ready for implementation by the beginning of 2024.</p> <p><i>Link to target:</i></p>

<sup>12</sup>Digital objective 2: at least 20 million ICT professionals are employed in the Union, promoting women's access to the field and increasing the number of ICT graduates

	<p>The new human resources management system will create a stronger motivation for researchers to open up to the business sector. Therefore, at the same time, a network of scientific and technological infrastructure will be strengthened and further developed through which researchers will cooperate with the business sector. The Network will support the growth and development of young researchers and enable them to develop the skills necessary for different future R&amp;D careers in the academic and business sectors.</p> <p><i>Tentative timeline</i> 4/2021.-7/2026.</p> <p><i>Responsible authority:</i> Ministry of Science and Education</p>
<b>Budget</b>	<p>National (planned): 74.5 million. EUR</p> <ul style="list-style-type: none"> <li>○ Investment through NRRP in the amount of 71.5 million R2. EUR (C3.2-I2) is planned for the development of scientific technological infrastructure</li> <li>○ through the new Programme for Competitiveness and Cohesion 2021-2027 in the amount of 74.5 million. EUR. Implementation of the project to be financed through the PKK 21-27 is planned in 2024.</li> </ul> <p>It is necessary to provide appropriate financial instruments to finance this type of measures beyond the NRRP, i.e. on a continuous basis and not only until 2026.</p>
<b>Expected impact</b>	<p><i>4 infrastructure projects are expected to be implemented by Q2/2026.</i></p>

3.2.9 *Measure 2.5 – implementation of the Declaration on commitment to the issue of women in the Digital World<sup>13</sup>*

<b>New measure</b>	<p>No – National Plan for Gender Equality for the period up to 2027, measure 4.2. Implement the Declaration on commitment to women in the Digital World</p>
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>In terms of higher level of expertise, the share of ICT specialists in the total number of ICT specialists is slightly higher than the EU average (21% compared to 19%) .56 and their share of total employment in 2020 was only 1.5 %57.</p> <p>Further to the above, in May 2019 the Government of the Republic of Croatia signed the EU Declaration on commitment to the issue of women in the digital world and tasked the Central State Office for the Development of the Digital Society and URS with coordinating its implementation with the aim of introducing the topic of representation of women in the digital world into the public space and encouraging girls to enrol in related faculties.</p>

<sup>13</sup>Digital objective 2: at least 20 million ICT professionals are employed in the Union, promoting women's access to the field and increasing the number of ICT graduates

	<p>Some of the obstacles to greater participation of women in the ICT sector are: strong gender stereotypes and division into so-called “female” and “male” jobs, age and motherhood, myth of ICT as too technical field for women, lack of visibility of female role models in ICT and lack of developed mentor network, which was also discussed during the round tables held on this topic. The initiated debate on the insufficient share of women in the ICT sector also contributes to the annual marking of “International girls' day in ICT” by organizing workshops for girls, visits to ICT companies, etc.</p> <p>According to the implementing points of the declaration, the focus in the coming period will be on:</p> <ul style="list-style-type: none"> <li>• encouraging and promoting a non-discriminatory working culture (including working conditions) by organising roundtables on the subject of raising awareness and encouraging high school girls to opt for STEM professions, as well as engaging in initiatives supporting women to pursue careers in the IT sector in collaboration with private sector institutions and businesses</li> <li>• media promotion through cooperation on the website of the Agency for electronic media <a href="http://www.zeneimediji.hr">www.zeneimediji.hr</a></li> <li>• participation in the celebration of women and girls' day in ICT across Europe with private sector institutions and businesses.</li> </ul> <p>As part of the implementation of the measure, the number of participants in two events organised to promote the targets of the Declaration over two years (2023 and 2024), as well as the number of media releases on female representation in the digital world over two years will be monitored.</p> <p><i>Link to target:</i></p> <p>The Republic of Croatia signed the Declaration on commitment to the issue of women in the digital world, which through the proposed measures committed itself to fostering the active and important role of women in the digital society and to contribute to achieving gender equality in the field of IT through cooperation with the public and private sectors, the scientific community, civil society and the media.</p> <p><i>Tentative timeline</i></p> <p>The funds are planned by the 4th quarter of 2024.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society and Office for Gender Equality</p>
<b>Budget</b>	National (planned by 2024 for measure 4.2. Implement the Declaration on commitment to the issue of women in the Digital World): EUR 26,543,00

<b>Expected impact</b>	<i>Not known</i>
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3.2.10 Measure 3.1 – Providing prerequisites for spatial planning and faster construction<sup>14</sup>

<b>New measure</b>	No – NRRP: C2.3. R4 Strengthening connectivity as a basic digital transition societies and economies
<b>Description of the measure</b>	<p>Content of the measure:</p> <p>The measure concerned concerns the improvement of the regulatory framework in the area of spatial planning and construction and cross-compliance where necessary'. with regulations in the field of electronic communications, which will be conducive to investment in the development of very high-capacity broadband electronic communications networks.</p> <p>As part of THE reform OF THE NRRP 2021-2026 C2.3.-R4, most of the changes to the regulatory framework have already been implemented, which provide preconditions for spatial planning and faster construction of very high-capacity electronic communications networks. Adoption of the Ordinance on Amendments to the Ordinance on simple and other buildings and works (Official Gazette No. 155/23) simplified the construction of key components of electronic communications networks, in particular: network sections and branches, cable sewers using mini and micro-trench technology; cabinets, cabinets and containers intended for the accommodation of electronic communications equipment, replacement of electronic communications equipment on existing antenna poles and reception points and small-area wireless access points.</p> <p>Within the framework of the NRRP, an activity was carried out to develop guidelines for the development of spatial plans in relation to the conditions and manner of planning of electronic communication infrastructure.</p> <p>In addition, local and regional (regional) self-government units are continuously informed about key provisions of spatial plans related to the installation of electronic communication networks, especially about the installation of electronic communication cables and mobile electronic communication network base stations.</p> <p>The measure envisages, in addition to activities carried out within the framework of the NRRP Reform, amendments to the Construction Act (NN 153/13, 20/17, 39/19, 125/19) and the physical planning Act (Official Gazette No. 153/13, 65/17, 114/18, 39/19, 98/19</p>

<sup>14</sup>Digital objective 3: All end-users in a fixed location shall be covered by a gigabit network to the network termination point and all inhabited areas shall be covered by next generation high-speed wireless networks with performance at least equal to 5G, in accordance with the principle of technological neutrality

	<p>and 67/23) in order to ensure that the spatial plans of local and regional (regional) self-government units do not constitute an obstacle to the further development and construction of broadband electronic communications networks. Also, one of the key preconditions for the development and construction of the EC network is the adoption of the State Plan of physical Development of the Republic of Croatia, and the harmonisation of spatial plans of the lower level with the State Plan, as well as with the Regulation on the criteria for the Development of electronic communications infrastructure and other related equipment (NN 131/12, 92/15, 10/21).</p> <p>In conclusion, in the priority area of public policy implementation 3.1. the amendments to the regulatory framework and regulatory harmonisation will strengthen the institutional framework and institutional cooperation among stakeholders that are essential for the construction of broadband electronic communications networks and will continuously work to remove potential obstacles to the development of broadband electronic communications networks in terms of current and/or future regulations that could negatively impact the costs and/or speed of network construction.</p> <p>Link to target: Providing preconditions for easier spatial planning and faster construction of electronic communications infrastructure will facilitate the construction of very high-capacity broadband networks and make high speed/capacity networks available to all end-users.</p> <p>Tentative timeline The measure will be implemented continuously until the end of 2025.</p> <p>Responsible authority: Ministry of Physical Planning, Construction and State assets, Croatian regulatory Agency for Network activities (HAKOM) and Ministry of the Sea, Transport and Infrastructure</p>
<b>Budget</b>	<i>EU - NRRP reform C2.3. R4: €402.390 (MPGI) allocated</i>
<b>Expected impact</b>	<p>The implementation of this measure is expected to remove certain administrative obstacles that can be removed, taking into account Regulation in the field of simple Regulation and construction, which will facilitate and accelerate the construction of very high-capacity electronic communications networks and consequently make available to all users the network and broadband services, through:</p> <ul style="list-style-type: none"> <li>• Drafting of the Act on Amendments to the Construction Act</li> <li>• Prostate Regulation Act (Official Gazette No. 153/13, 65/17, 114/18, 39/19, 98/19 and 67/23), adoption of the State Plan for Spatial Development of the Republic of Croatia – according to the physical planning Act stipulates that the State Plan for Spatial Development and the territorial Plan for exclusive Economic Zone will be adopted by 31 December 2026.</li> </ul>



	<ul style="list-style-type: none"> <li>• consistent application and implementation of the Regulation on the criteria for the development of electronic communications infrastructure and other related equipment.</li> </ul>
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3.2.11 Measure 3.2 — Regulation of the impact of property use costs on network development<sup>15</sup>

<b>New measure</b>	Non - priority area of public policy implementation 3.2: Regulation of the impact of property use costs on network development
<b>Description of the measure</b>	<p>Content of the measure:</p> <p>The measure will cover the issue of potential high fees for the right of way and the occurrence of the practice of determining local taxes (taxes for the use of public space for the purpose of setting up electronic communications infrastructure) as well as other possible fees by local and regional (regional) self-government units according to other legal bases for the construction of broadband electronic communications networks. Those taxes and other possible levies may have a significant impact on the implementation of activities, measures and targets concerning the development of broadband electronic communications networks referred to in various strategic planning acts. In line with the analyses carried out, it is necessary to examine whether the level of travel-related charges constitutes one of the key elements adversely affecting the cost of constructing broadband electronic communications networks. Within the relevant priority area of public policy implementation, taking into account the analyses undertaken so far and the steps taken, the competent authorities will analyse and, if necessary, implement changes to the existing regulatory framework in order to ensure the implementation of the provision of Article 64 (1) of the electronic communications Act in order to ensure a level of fees that will be conducive to investments in the further development of networks. (NN 76/22) which defines that the level of compensation must represent a fair proportion between the rights of the general good manager or the owner of immovable property and the interests of the operators of electronic communications networks and services and the public interest in the development of the electronic communications market. This will result in a framework that will be conducive to investment in the development of broadband electronic communications networks.</p> <p>In addition to the mentioned issue of the amount of travel rights charges, the priority area of public policy implementation will also deal with the emergence of the practice of determining local taxes and other possible levies by the local and regional (regional) self-government unit for the construction of broadband electronic communications networks. The emergence of local taxation practices on the construction of broadband electronic communications networks may lead to significant business and financial planning uncertainty for operators, which may negatively affect the construction of broadband electronic communications networks.</p>

<sup>15</sup>Digital objective 3: All end-users in a fixed location shall be covered by a gigabit network to the network termination point and all inhabited areas shall be covered by next generation high-speed wireless networks with performance at least equal to 5G, in accordance with the principle of technological neutrality

	<p><i>Link to target:</i></p> <p>This measure will ensure that real estate charges (right of way and local taxes) do not constitute an unjustified burden in the construction of broadband electronic communications networks.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Local and regional (regional) self-government unit and Croatian regulatory Agency for Network activities (HAKOM)</p>
<b>Budget</b>	Not applicable — all activities are carried out in the framework of the regular activities of the competent authorities
<b>Expected impact</b>	The implementation of this measure is expected to reduce administrative burdens, with the aim of ensuring a level of fees that will be conducive to investment in the further development of very high-capacity electronic communications networks.

3.2.12 Measure 3.3 — Providing support for the development of networks in areas where there is insufficient commercial interest in investment<sup>16</sup>

<b>New measure</b>	No – NRRP: C2.3 R4 I1 implementation of projects under the Framework National Programme for the Development of broadband infrastructure in areas where there is insufficient commercial interest in investment (ONP 2), and C2.3. R4-I2 Construction of passive electronic communications infrastructure.
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The measure in question concerns the implementation of aid schemes in areas where there is insufficient commercial interest in investment for the construction of broadband electronic communications networks.</p> <p>This measure will rely on previously adopted support programmes for network construction in areas where there is insufficient commercial interest in investments, i.e. support programmes implemented under OP Competitiveness and Cohesion 2014-2020 and support programmes from the National recovery and Resilience Plan 2021-2026.</p> <p>The indicative National broadband access infrastructure Development Programme (ONP), which is a national scheme of State aid aimed at the construction of broadband access infrastructure (NGA) in rural and suburban areas, i.e. in areas where market failure has been demonstrated or there is no commercial interest in the construction of broadband infrastructure, and the National broadband aggregation infrastructure Development Programme (NP-BBI Programme), shall be financed from the multiannual financial framework 2014-2020 and may be implemented by the end of 2023.</p>

<sup>16</sup>Digital objective 3: All end-users in a fixed location shall be covered by a gigabit network to the network termination point and all inhabited areas shall be covered by next generation high-speed wireless networks with performance at least equal to 5G, in accordance with the principle of technological neutrality

	<p>Furthermore, support programmes from the National recovery and Resilience Plan 2021-2026 are currently being implemented:</p> <ul style="list-style-type: none"> <li>• Investment C2.3 R4 I1 — implementation of projects under the Framework National Programme for the Development of broadband infrastructure in areas where there is insufficient commercial interest in investment (ONP 2), and</li> <li>• Investment C2.3. R4-I2 - Construction of passive electronic communications infrastructure.</li> </ul> <p>In addition, support programmes will also be sought in the future EU Multiannual Financial Framework beyond 2027, if even then indicators related to network coverage in rural (commercially non-cost-effective areas) are such that State aid-based interventions for the construction of broadband electronic communications networks need to be undertaken in order to achieve the strategic target related to THE coverage of VHCN networks.</p> <p><i>Link to target:</i></p> <p>The measure in question concerns the implementation of aid schemes in areas where there is insufficient commercial interest in investment for the construction of broadband electronic communications networks. The measure will contribute to reducing the digital divide between rural and urban areas and ultimately ensure coverage by broadband electronic communications networks of the entire territorial territory of the Republic of Croatia.</p> <p><i>Tentative timeline</i></p> <p>The implementation of the measure is planned by the end of 2027, except in the part related to the project for the construction of broadband aggregation infrastructure that is implemented by 2030, after which it will be decided whether the implementation of the measure will continue until the end of 2030 (in accordance with the recognized need).</p> <p><i>Responsible authority:</i></p> <p>Ministry of the Sea, Transport and infrastructure and Ministry of Regional Development and EU Funds</p>
<b>Budget</b>	<p>Contracted - projects in implementation:</p> <ul style="list-style-type: none"> <li>• National resources: 15.34 million. EUR</li> <li>• EU funds: 169.57 million. EUR</li> </ul> <p>OP Competitiveness and Cohesion 2014-2020 — specific target 2a1 — awarded grants of <b>184,91 million. EUR</b> (EU part 169,57 million)</p> <p>Planned:</p> <p>EU funds: 175.73 million. EUR</p> <ul style="list-style-type: none"> <li>○ Competitiveness and Cohesion Programme 2021-2027: €50 million EUR</li> <li>○ NRRP 2021-2026: 125.73 million. EUR</li> </ul>

<b>Expected impact</b>	<p>Under OPCC 2014-2020, a grant of 184,91 million was contracted for the specific target 2a1 (ONP and NP-BBI programmes). EUR (EU part 169,57 million). The implementation of the ONP covers 198,000 addresses in the area of 118 JL (R)S. The expected completion date of contracted projects is Q4 2023. Under the PKK 2021-2027, funds are planned to continue the project to build a national broadband aggregation infrastructure and connect targeted public users (NP-BBI) of 50 million. EUR with a view to constructing 175 generator nodes. The expected completion date of the projects is Q4 2030.</p> <p>Under THE NRRP 2021-2026 for two investments: C2.3. R4-I1: Implementation of ONP and C2.3 projects R4-I2: The construction of passive electronic communication infrastructure provided a total of 125.73 million. EUR. The deadline for completion of the investments is Q2 2026. The implementation of investment C2.3. R4-I1 will cover up to 125 local self-government units and will enable ACCESS to VHCN networks for about 700,000 inhabitants and about 124,000 households. The target is for at least 100 000 additional households, in areas where there is no next generation broadband network, to be covered by broadband access networks of at least 100 Mbit/s (with the option of upgrading to 1 Gbit/s) in the direction of the user. The areas in which investment C2.3. R4-I2 will be implemented will be determined following a public consultation on the expression of market interest held, with the aim of making 5G networks available in at least 80% of rural and sparsely populated areas (average population density less than 20/km<sup>2</sup>) within the scope of the project.</p>
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3.2.13 Measure 3.4 — Promoting the use of high-speed services<sup>17</sup>

<b>New measure</b>	No – SDH 2032 Priority area of public policy implementation 3.4: Fostering the use of high-speed services
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>In addition to the need to implement measures and activities on the supply side, poor use of high-speed services through already developed infrastructure is also a challenge. Therefore, this measure will carry out a comprehensive analysis of possible demand-side measures and activities that would constitute an upgrade to supply-side measures (would be complementary to supply-side measures) and could positively affect the increase in the use of high-speed broadband services, which would bring Croatia closer to the EU average. The analysis will define the best ways to intervene in terms of demand side activities, which will ensure efficient use of public funds.</p> <p>Any demand side intervention will enable the use of already built very high-capacity broadband electronic communications networks, the vast majority of which so far do not generate income to the investor, which will ensure the cost-effectiveness of realised investments in network construction. Once the number of users of the Gigabit network is increased through selected demand-side activities, their improved user experience will gradually improve the overall perception of the benefits of higher broadband speeds. All</p>

<sup>17</sup>Digital objective 3: All end-users in a fixed location shall be covered by a gigabit network to the network termination point and all inhabited areas shall be covered by next generation high-speed wireless networks with performance at least equal to 5G, in accordance with the principle of technological neutrality

	<p>of this will ultimately boost competition on very high-capacity networks. Demand side activities should primarily relate to already built very high capacity networks (VHCN) (FTTH, FTTB and the “DOCSIS 3.1” 16 cable approach) as all these technologies can offer a down-speed of 1 Gbit/s. Likewise, activities should relate equally to the increase in speed, if the infrastructure is already in use by the user, or to the start of use if it is not in use. The only prerequisite would be to set a minimum level of speeds to which demand-side activities would relate. In the initial phase, the specified speed could be at least 100 Mbit/s as the specified speed is monitored as a sub-indicator within the DESI connectivity category.</p> <p><i>Link to target:</i></p> <p>The measure will ensure an increase in the use of high-speed services, which will also have an impact on the faster construction of the new broadband electronic communications network infrastructure.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Croatian regulatory Agency for Network activities (HAKOM)</p>
<b>Budget</b>	<p>The analysis showed that the voucher support scheme is the most appropriate way to stimulate demand, and the necessary amount of state aid for the voucher scheme will be proposed for co-financing in the next EU MFF (after 2027).</p>
<b>Expected impact</b>	<p>The expected outcome of demand side interventions, in the short term, will be an increase in the number of users using speeds of at least 100 Mbps, while the main long-term expected outcome will be a change in end users' perception of the benefits of higher speeds, an increase in competition at higher speeds and a consequent decrease in service prices. One potential demand side activity requiring a particularly detailed analysis is the introduction of a voucher support scheme, which would reduce the cost of end-users, as an incentive for end-users to use higher speeds. The analysis will respond to the justification and possibility of introducing an aid scheme through a voucher, and will propose the following determinants relevant for the design and implementation of the aid scheme:</p> <ul style="list-style-type: none"> <li>• primary coverage of the aid scheme/geographical coverage of the intervention,</li> <li>• targeted beneficiaries of aid,</li> <li>• the amount of the aid,</li> <li>• duration of the aid,</li> <li>• source of funding,</li> <li>• regulatory mechanisms to ensure non-discrimination and competition, and</li> <li>• allocation and control mechanisms.</li> </ul>

	The analysis found that the voucher support scheme would be the most appropriate way to stimulate demand given the current market situation. It is therefore necessary to consider the possibility of providing funding for the implementation of demand side support schemes that will encourage the use of already built networks with speeds of 100 Mbps/s. This will enable a gradual reduction of the digital divide between rural and urban areas of the Republic of Croatia.
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3.2.14 *Measure 4.1 – support for the establishment of the Croatian competence Centre for semiconductors and microelectronics<sup>18</sup>*

<b>New measure</b>	Yes.
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>It is necessary to network the economy with science at national level through a platform that will emerge as a result of this measure. Namely, strategic guidelines for the future development of society and business redirect traditional business process patterns towards creating compositions of joint action of all stakeholders: from state institutions, the local community, to the university community and economic operators, with a view to sharing knowledge, good practices, fostering research and innovation and ultimately improving the competitiveness of the semiconductor manufacturing sector and increasing national production of state-of-the-art semiconductors. This is planned to be achieved by establishing the Croatian competence Centre for semiconductors and microelectronics.</p> <p>Users of the Croatian competence Centre for semiconductors and microelectronics come mostly from the economy as the main user of competence Centre services. Furthermore, the stakeholders are both university and research organisations that participate in the organisation of the competence Centre and are also potential users of the competence Centre through cooperation on R &amp; D projects with the Croatian economy or European economic and research institutions.</p> <p>As part of the preparation for the establishment of relevant stakeholders in the business and academic community, a questionnaire was sent for expected needs for certain activities in the future within the competence Centre that would be useful for improving the product placed on the market:</p> <ul style="list-style-type: none"> <li>● Training of engineers for analogue design of chips</li> <li>● Training of engineers in the digital design of chips</li> <li>● Characterization of large voltage/electricity/strength breakers (GaN, SiC)</li> <li>● Characterisation of analogue and mixed signal electronic systems</li> </ul>

<sup>18</sup>Digital objective 4: the production, in accordance with Union law on environmental sustainability, of state-of-the-art semiconductors in the Union accounts for at least 20% of the value of world production

	<ul style="list-style-type: none"> <li>• Characterisation of multi-channel digital electronic systems with digital signals up to 32 GB/s</li> <li>• Characterisation of RF circuits and systems up to 6 or 40 GHz</li> <li>• Measurement of systems in a temperature chamber or air conditioning chamber</li> <li>• Characterisation of electromagnetic compatibility of electronic systems</li> <li>• Characterisation of electrostatic protection of electronic systems</li> <li>• X-ray solder and packaging measurements</li> </ul> <p><i>Link to target:</i></p> <p>Networking the actions of all stakeholders: from state institutions, the local community, to the university community and economic operators, with the aim of sharing knowledge, good practices, fostering research and innovation and ultimately improving the competitiveness of the semiconductor ecosystem. Competence centres will help companies to access other infrastructures set up under the Chip Europe Initiative, such as design tools and pilot lines.</p> <p><i>Tentative timeline</i></p> <p>Upon receipt of the European Commission Guidelines for competence centres, a public call for pre-selection of national candidates for the competence Centre for semiconductors in 1Q 2024 is planned to be proposed to the chips Joint Undertaking for further selection and (co) funding in 3 Q 2024.</p> <p>The measure will be implemented by the end of 2024.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Economy and Sustainable Development</p>
<b>Budget</b>	<ul style="list-style-type: none"> <li>• Up to EUR 1 million per year has been provided, for a period of four years under the Digital Europe 2021-2027 programme, the determination of national co-financing is under way.</li> </ul>
<b>Expected impact</b>	<ul style="list-style-type: none"> <li>• <i>Establishment of the Croatian semiconductor and microelectronics competence Centre in order to encourage the sharing of knowledge and good practices, which will increase the competitiveness of the Croatian semiconductor ecosystem.</i></li> </ul>

3.2.15 Measure 6.1 — Development of quantum communication infrastructure<sup>19</sup>

<b>New measure</b>	No – NRRP: C3.2.R2-I2
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<sup>19</sup>Digital objective 6: the Union has its first quantum acceleration computer by 2025, paving the way for it to have top quantum capabilities by 2030.

<p><b>Description of the measure</b></p>	<p><i>Content of the measure:</i></p> <p>Croatia is limited with financial and human capacities to contribute to the development of the quantum computer. On the other hand, Croatia is active and well-funded in another quantum technology, which is much more mature, for which there are several start-ups in the EU already (and could be in Croatia), which is a technology of quantum communication or quantum cryptography. Its purpose is to increase the level of cyber security in communications, i.e. the transmission of information. In Croatia, the nine-member consortium CroQCI implements the implementation of quantum communication through the CroQCI project financed by the EU and HR funds.</p> <p>The goal of the CroQCI project is the construction of quantum communication infrastructure (QCI), which consists of terrestrial and space solutions that will enable ultra-secure transmission of information and data within the Republic of Croatia and enable the connection of communication means in Croatia with those across the European Union. The project will be implemented by the QCI consortium comprising relevant national research and public institutions, higher education institutions and public undertakings in this field.</p> <p>This investment will finance scientific and technological and innovation infrastructure of strategic importance and great research potential for STEM and ICT areas, which directly contributes to strengthening the human capacities of researchers (young and experienced) for top scientific research and cooperation with the business sector. Technology and innovation infrastructure will be established and upgraded, i.e. a network of infrastructure based on open innovation principles, which will directly foster clean technology areas and the green and digital transitions.</p> <p>Investments through reform started with the opening of the first call for grants “Croatian Quantum Communication infrastructure – CroQCI” worth EUR 4,999,667,00.</p> <p><i>Link to target:</i></p> <p>The implementation of this measure contributes to the development of quantum technology of the national quantum communication infrastructure.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented by the end of 2025.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Science and Education/CARNET</p>
<p><b>Budget</b></p>	<ul style="list-style-type: none"> <li>Investments through measure 6.1 started with the contracting of the project within the DEP call “EU secure Quantum Communication infrastructure (DIGITAL-2021-QCI-</li> </ul>



	01) and continued through THE NRRP call for grants “Croatian Quantum Communication infrastructure - CroQCI” worth NRRP investment C3.2.R2-I2 in the amount of EUR 4,999,667.00).
<b>Expected impact</b>	<ul style="list-style-type: none"> <li><i>The impact of the project is the implementation of experimental quantum communication systems and networks, integrated with a range of secure communication technologies. Croqci will ensure network architecture and case studies and enable the integration of terrestrial infrastructure with the future space component into a fully functional quantum communication network. Knowledge transfer between the research community and partner institutions will result in engineers and technicians trained to apply new quantum technologies. QKD demonstration is an opportunity to educate and train users in quantum communication technologies.</i></li> </ul>

3.2.16 Measure 6.2 — Promoting the use of supercomputers<sup>20</sup>

<b>New measure</b>	Yes.
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>Given its interdisciplinary nature and the ability to process large amounts of data and perform complex calculations, the HPC is essential for addressing a number of challenges and there is no social, scientific or industrial area in which HPC has not found its application.</p> <p>The Republic of Croatia is making significant efforts to implement supercomputers for the purpose of digital transformation of society and economy.</p> <p>In early 2023, SRCE launched a new national resource for high-performance computing in the science and higher education system. This resource is also the first petascale computer in Croatia – Supek supercomputer. It is located in the space of a newly built data centre on the Borongaj University of Zagreb Science and University campus. Supercomputer Supek provides scientists with a state-of-the-art computing environment and provides research that is impracticable on standard computing equipment.</p> <p>As part of the project “Development of Research infrastructure on the campus of the University of Rijeka”, financed by EU funds. in 2015, the Bura supercomputer was acquired, which at that time became the fastest computer system in Croatia, and also the first to enter the list of TOP500 of the most powerful supercomputers in the world.</p>

<sup>20</sup>Digital objective 6: the Union has its first quantum acceleration computer by 2025, paving the way for it to have top quantum capabilities by 2030.

	<p>The planned purpose of the barrel is advanced modelling and optimization in the field of biotechnology, biomedicine, nanoscience, and other branches of science and industry.</p> <p>In the heart is Isabella's computer cluster created in 2002 with the aim of enabling all interested Croatian scientists to access the computer cluster and work on the European DataGrid project led by CERN.</p> <p>In the coming period, the use of supercomputers will continue to be actively encouraged in different spheres of digitalisation of society and economy.</p> <p><i>Link to target:</i></p> <p>The measure describes the contribution of the Republic of Croatia in the development of supercomputers, which has been recognized as a relevant element for monitoring performance indicators of the 6th Digital goal.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Science and Education/heart in cooperation with academic community</p>
<b>Budget</b>	<ul style="list-style-type: none"> <li>• Not applicable</li> <li>• In the coming period, the need for additional funding will be considered to encourage the use of supercomputers for public sector and economic purposes.</li> </ul>
<b>Expected impact</b>	<i>Not known</i>

3.2.17 *Measure 7.1 – introducing new regulatory solutions to facilitate business and promote the use of digital technologies<sup>21</sup>*

<b>New measure</b>	Non - C1.1.1 R1 continuation of the reform of the business and regulatory environment
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p><i>The digital transformation brings with it changes in many areas. For example, the entrepreneurial sector will have to expand its range of products and services using new technologies. In addition to the changes that the use of new technologies brings, there is</i></p>

<sup>21</sup>Digital: At least 75% of undertakings in the Union shall use one or more of the following technologies, according to their business: cloud computing services, big data, artificial intelligence

*a need to introduce new regulatory solutions that will facilitate business and promote the use of digital technologies in new forms of business.*

Changes in the area of digitalisation require rapid reactions in terms of adapting the necessary legislation and removing obstacles to business in both Croatia and the international market, especially legislation that directly or indirectly affects business, development and application of innovations based on digital technologies, especially when applying advanced technologies, such as AI, big data, etc.

In the previous period, an analysis of the impact of new regulatory solutions on the business of entrepreneurs was made. The Ministry of Economy and Sustainable Development (hereinafter MINGOR), in cooperation with the German Federal Ministry of Economic Affairs and MINGOR Energy and Gesellschaft für Internationale Zusammenarbeit, implemented the project “Strengthening the operational capacity of the public administration in regulatory methodologies and processes and developing innovation support models and new business models”, funded by the Structural Reform support Programme. In accordance with the recommendations made within the framework of this project, in order to improve the impact assessment procedures on the economy, primarily small and medium-sized enterprises, a strategy and action plan for the organisation of the impact assessment on the economy has been developed in the process of adopting legislation and subordinate legislation.

During the forthcoming period, the focus is the implementation of the concept known as regulatory safe testing environment (“regulatory sandbox”), which enables controlled testing of new business models. This integrated process of building a “regulatory” environment for innovative and technological areas not covered by the current legislative framework is yet to be tested by many States, using only the most advanced EU administrations. The system in question would represent a natural upgrade to MINGOR's activities in the field of stimulating innovation and business development, and through the instrument thus established would ensure continuity of support for innovation, not restriction due to administration, i.e. provide an integral system that will enable the smooth development of innovative companies.

The implementation of the concept known as the regulatory safe test environment (“regulatory sandbox”) will be coordinated by MINGOR, which will be A contact point for entrepreneurs who encounter administrative and regulatory problems in the implementation of their innovative projects or new business models. MINGOR experts, in cooperation with experts who form a better Regulation network responsible for specific regulatory areas, will carry out a problem analysis and propose possible solutions, i.e. initiate regulatory changes, or propose ways of adapting the entrepreneurial idea if necessary. As part of the establishment of a regulatory safe test environment, protocols will be adopted and a network of experts on better Regulation will be used to ensure swift and systematic management and coordination of the state administration at operational level. The system will enable rapid identification of both new business models and market distortions and rapid preparation of proposals for

	<p>comprehensive and synchronised Regulation adaptation in all related areas where the effects of innovation or new business model are observed.</p> <p><i>Link to target:</i></p> <p>This measure will adapt the regulatory framework to new technologies, with the aim of facilitating their integration into day-to-day operations.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Economy and Sustainable Development</p>
<b>Budget</b>	Not applicable
<b>Expected impact</b>	<i>For the needs of Croatia, a custom model of regulatory safe testing environment (regulatory sandbox) has been developed that enables controlled testing of new business models and/or innovations based on digital technologies.</i>

3.2.18 Measure 7.2 — ensuring the availability of a digital database of anonymised data and tools enabling the development of new innovative solutions<sup>22</sup>

<b>New measure</b>	NA - NRRP: C2.3. R2-I2 establishment of a central data easy repository and business analytics system
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>It is necessary to ensure the collection of data in standardised formats (structured and unstructured data), advanced analytics and visualisation of collected data, which would then be made available through a platform to serve as an open data warehouse, with analytical tools and artificial intelligence elements implemented, available to the private and public sector for the development of new, innovative services. This must be based on the principle of interoperability with the implementation of standard APIs for access to open data aimed at upgrading the open data Portal in Croatia and revitalising its use by introducing standard APIs that will enable the collection of other data from state administration bodies, cities and communities and other public services, public companies, and the private sector. In addition, it is necessary to educate users about the use of the platform in order to maximise the utilisation of the solution offered.</p> <p>The Platform will enable real-time data analysis which will significantly improve data-driven decision-making. It is also important to emphasize that the use of tools that enable</p>

<sup>22</sup>Digital objective 7: At least 75% of undertakings in the Union shall use one or more of the following technologies, according to their business: cloud computing services, big data, artificial intelligence

	<p>the use and analysis of data without the use and implementation of data warehouses is planned, but the use of data directly from the data lake will be encouraged in cases where possible. This will simplify business operations and enable employees to be included in the actual data analysis and not only in the preparation thereof. Furthermore, the DWH platform will provide access to data and tools to the public and private sectors in line with the existing legislative framework. Such an approach will enable data sources to come not only from state administration bodies, public authorities and local and regional (regional) self-government units, but also from the private sector that will be able to build value added services on a common data set. By establishing data warehouses and business analytics systems in the state administration, the primary target is to improve and optimise the data management system, reporting system and decision-making process at all levels, and to enable the private sector to build value added services on available data and tools.</p> <p>Users of such a system will have continuous technical support for analysis and visualisation activities, and the system will be continuously upgraded with security mechanisms, ensuring secure storage of data with limited access classification.</p> <p><i>Link to target:</i></p> <p>Ensuring the availability of a database of anonymised open public data will encourage entrepreneurs to apply new technologies more intensively in their business operations in order to facilitate data-driven decisions.</p> <p><i>Tentative timeline</i></p> <p>7/2021.-6/2026.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	<i>National (C2.3. R2-I2 establishment of a central data easy repository and business analytics system): 16.6 million. EUR 7,520,820,86 spent from the project to date</i>
<b>Expected impact</b>	<i>Not known</i>

3.2.19 *Measure 8.1 — Providing funding for cultural and creative industries to adapt business to the Digital Single market<sup>23</sup>*

<b>New measure</b>	No – NRRP C1.1.1. R6-I1 transformation and strengthening the competitiveness of cultural and creative industries
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<sup>23</sup>Digital objective 8: more than 90% of SMEs in the Union have reached at least the basic level of digital intensity

<p><b>Description of the measure</b></p>	<p><i>Content of the measure:</i></p> <p>The digital environment, especially in times of crisis, has become the central place for the creation, production, sharing and consumption of cultural content. Adaptation to the digital environment is a prerequisite for the development of cultural and creative industries regardless of whether content is generated and distributed in digital form or in digital contact with audiences. Within a short period of time, capacity building has started to be required of the entire cultural and creative industries and legislative adaptations from Member States providing a fair framework for revenue generation and copyright protection in the digital environment.</p> <p>Cultural and creative industries belong to the sectors most affected by the impact of the COVID-19 crisis and a sharp drop in revenues has put at risk the financial sustainability of cultural and creative industries and has had a strong impact on the decline in productive activities and further investments in new business models and the creation of new content and services.</p> <p>Due to the specificities of the sector, but also to the exceptional contribution of cultural and creative industries to the whole economy and to fostering innovation of all sectors, the European Parliament recommended that Member States focus 2% of the overall recovery and resilience fund allocation on the recovery of cultural and creative industries and ensure the continuation of business activity.</p> <p>It is necessary to provide entrepreneurs in the field of cultural and creative industries with financial resources to adapt their business to the digital single market and the new regulatory framework of the EU and Croatia, to strengthen the capacity to adapt and swiftly switch to new business conditions, to achieve competitiveness and to exploit the potential of the market, as well as to develop innovative business models and industry standards, platforms, applications and other products and services that are attractive to audiences in the digital market.</p> <p><i>Link to target:</i></p> <p>This measure will encourage investments in digitalisation of business of entrepreneurs in the cultural and creative industries.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented by the end of 2027.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Culture and Media</p>
<p><b>Budget</b></p>	<p>The financing provided under THE NRRP for the implementation of this investment amounts to EUR 33,180,702,00.</p>

<b>Expected impact</b>	By 2Q 2026, 100 projects contracted under the call for grants “transformation and enhancing the competitiveness of cultural and creative industries” (NRRP) will be implemented.
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3.2.20 *Measure 8.2 – administrative burden relief for entrepreneurs, reduction of non-tax and para-fiscal charges and digitalisation of public services for entrepreneurs (G2B)<sup>24</sup>*

<b>New measure</b>	Non - C1.1.1. R1-I2 continuation of administrative and fiscal burden relief, C1.1.1. R1-I1 digitalization of state and public administration services by business sector (G2B)
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>One of the preconditions for the successful implementation of the digital transformation and digitalisation of the economy is the harmonisation of the strategic, regulatory and enforcement framework, which includes administrative and parafiscal and non-tax relieving of the economy, especially SMEs, in order to further create an enabling and competitive business environment that encourages the use of digital technologies.</p> <p>It is necessary to address the high level of <b>red tape</b> by reducing and maximising the number of administrative requirements placed before the entrepreneurial sector through legislative changes. In the previous period, four action plans for administrative easing of the economy were drafted and implemented, under which 390 measures were implemented and a financial easing of the economy of 252.8 million euro was achieved. Furthermore, the development of a new/fifth Administrative burden relief Action Plan will continue to optimise and digitalise the administrative procedures identified as constituting the highest burden for the private sector. This will provide a more favourable legal and administrative environment for businesses by further implementing measures to relieve, simplify and reduce operating costs. 103 actions for the Fifth Action Plan are foreseen in cooperation with a wide range of TDU stakeholders. The implementation of the measures set out in the new/fifth Action Plan to administratively relieve the economy will reduce the burden on entrepreneurs by at least 265.5 million. EUR.</p> <p>At the same time, various charges in the form of <b>non-tax and para-fiscal charges</b> are an important element in assessing the business environment. It is therefore necessary to reduce the non-tax and para-fiscal charges of undertakings, in particular for SMEs. To this end, the first action plan for reducing fiscal and parafiscal charges was drafted in 2020. The new Action Plan for reducing non-tax and para-fiscal charges in 2023 for 2024 was drafted and adopted at the session of the Government of the Republic of Croatia held on 28 December 2023. All fees arising from public regulations paid by companies to central state bodies, local and regional (regional) self-government units or other bodies with public authority were analysed and considered. The implementation of measures to relieve businesses from parafiscal and non-tax charges in the new/second Action Plan to reduce non-fiscal and para-fiscal charges will lead to a direct cost reduction of 132.7 million. EUR.</p>

<sup>24</sup>Digital objective 8: more than 90% of SMEs in the Union have reached at least the basic level of digital intensity

Finally, in order to optimise the business of entrepreneurs in the Republic of Croatia, but also to use disruptive digital technologies in the development of new public policies, products and services based on high-value public data, it is necessary to ensure a thorough and rapid **digitalisation of public administration services for entrepreneurs**. Therefore, the targets set out in the digital compass of the European Union in the field of digitalisation of public services will be pursued – which means that by 2032 all key public services are fully accessible to businesses online, i.e. in digital form. The aim is to implement fully digital, contactless, and paperless G2B services in selected priority areas such as company registration and licensing and establish access to integrated information for market entry and investment in Croatia. Moreover, the aim is to improve data accuracy and accessibility to help state administration bodies improve policy design and implementation. Finally, the aim is to improve the exchange of information and consolidation of data in state administration bodies, in order to enable the application of the “once only” principle. Digitalisation and further improvement of services providing the possibility of EU funding aims to maximise the UN-Pope's G2B service, improve data accuracy, swift G2B exchange of information and enable the maximum possible application of the “once only” principle through networking.

In the digitalisation of public services for undertakings, the following activities are planned:

- Upgrading the accessibility of the START platform by digitising additional services for the purpose of registering and reporting and integrating existing start-up systems. It is planned to establish physical access points (known as START point) in order to enable the assisted submission of registrations via START, the improvement of START by expanding the scope of services, and the establishment of a digital licensing platform – START Plus which will serve for licensing.

State of play: the START Plus Platform has been established and is ending with IV. In the quarter of 2023, digital licensing for 19 business activities is available and 5 new (24 in total) will be added by the second quarter of 2024.

- Introduction of ICT solutions (digital platforms) for payment of fees
  - Current state: The platform was established in Q2 2022, and the platform provides services for 7 types of fees, and in the coming period the focus will be on increasing the number of fees in the platform.

Digitalisation of submission of applications and administrative procedures in MINGOR by digitizing the application process and procedures provided for in the Act on Strategic Investment projects, the Act on Investment Promotion, the Act on State aid for Research and Development projects and the development and upgrade of the Single Register of entrepreneurial infrastructure.

- State of play: the platform is expected to be operational by the end of 2024.
- Enabling a digital signature and further interoperability of the subsystem under the Platform EU funds to manage Cohesion envelope funds and national funds with key registers in order to increase paperless services and increase data accuracy and up-to-date. As part of the improvement of



	<p>interoperability, further reduction of administrative burdens for entrepreneurs is planned.</p> <p><i>Link to target:</i></p> <p>This measure aims to optimise the tax and parafiscal regulatory framework in order to facilitate business operations for entrepreneurs and indirectly encourage investment in a higher level of business digitalisation. Digital public services for entrepreneurs are a prerequisite for improving the existing level of digital intensity. Digitalisation of all public services for entrepreneurs will encourage a higher level of application of digital technologies in business day-to-day operations.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until the end of 2025.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Economy and Sustainable Development in cooperation with other state administration bodies</p>
<b>Budget</b>	<ul style="list-style-type: none"> <li>• EUR 4.381.509 (C1.1.1. R1-I2)</li> <li>• EUR 4.643.065 (C1.1.1. R1-I1)</li> </ul>
<b>Expected impact</b>	<i>Not known</i>

3.2.21 *Measure 8.3 — implementation of additional investment funding in the application of new technologies<sup>25</sup>*

<b>New measure</b>	No - C1.1.2. R3-I3 grants for digitalisation
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>Targeted mechanisms should encourage the digital transition in the operation of micro, small and medium-sized enterprises in all industrial sectors in the Republic of Croatia which significantly lags behind the EU average in terms of the implemented digital transition, which has a strong impact on competitiveness, but also on resilience, of Croatia on the EU market and the world market. To this end, during the entire ten-year period, it is necessary to provide deestrated financial instruments as a basis for encouraging the development of entrepreneurial ideas based on digital (disruptive) technologies.</p> <p>Additional funding is needed to invest in new technologies (including green and digital technologies) and to strengthen the business of SMEs. The digital transformation of</p>

<sup>25</sup>Digital objective 8: more than 90% of SMEs in the Union have reached at least the basic level of digital intensity

companies in Croatia should encompass a significant increase in the uptake of new technologies such as cloud computing, artificial intelligence, big data processing, etc.

In this context, the use of digital communication platforms would facilitate the production and exchange of content which creates preconditions for innovation, and directly affects the strengthening of the global reach and competitiveness of Croatian companies. In order to truly boost the digital competence of Croatian companies and users of their services, it is particularly important to encourage the availability of basic digital tools that enable companies, especially startups, to develop further innovative solutions. Providing a basic digital base and tools that assume a simple upgrade of new services significantly accelerates the scaling of companies and the achievement of the set goals of digitalization of the Croatian economy.

Taking into account the above, in order to further stimulate investment activity on the Croatian market in the following period it is necessary to: (i) develop additional financial instruments supporting the investment needs of specific target groups which normally do not have access or limited access to the financial resources of banks (micro, start-up, young, RDI investments, economic operators investing in less developed areas, etc.); (II) ensure more favourable financing conditions for SMEs in the growth and development phase (entities having access to finance), with a view to strengthening their competitiveness and resilience, as well as a more successful green and digital transition.

NRRP measures are being implemented, while the implementation of digitalisation measures through the Competitiveness and Cohesion Programme (PKK 2021-2027) is planned later, in order to ensure demarcation among these measures. The Ministry of Economy and Sustainable Development through the National recovery and Resilience Programme (NRRP 2021 - 2026) through the component resilient, green, and digital economy intended directly for entrepreneurs through the awarding of aid aimed at the development and implementation of new (digital) technologies will allocate a total grant value of 37.29 million. EUR. Measures are envisaged to stimulate the digital transformation of the economy by directly supporting companies' projects for the development and application of digital technologies and digitalisation of business processes. For the call, the vouchers for digitization of the application procedure are in progress.

In the 2021-2027 programming period, for which the Competitiveness and Cohesion Programme (PKK 2021-2027) was approved, the Ministry of intervention will, through the smart Europe thematic target, focus on strengthening the research and innovation capacities of entrepreneurs (SMEs and large ones) and using advanced technologies, exploiting the benefits of digitalisation, increasing the growth and competitiveness of SMEs and developing skills for smart specialisation, industrial transition and entrepreneurship. Through the specific target (SC) 1. II. harnessing the benefits of digitalisation for citizens, businesses, research organisations and public authorities for

	<p>digitising businesses, 74 million are earmarked. EUR, of which more than 51 million EUR of grants, through the following interventions:</p> <ul style="list-style-type: none"> <li>• Support for the digitalisation of SME business through the introduction of high-tech ICT solutions and improvement of SME business processes – 47.49 million. EUR</li> <li>• ICT vouchers - support to companies through professional services for increasing the use of digital technologies – 3.92 million. EUR</li> </ul> <p><i>Link to target:</i></p> <p>The measure is expected to strengthen and encourage the use of digital technologies in all sectors and for entrepreneurship to ensure the necessary preconditions for the digitalisation of business and the active use and development of new technology and, through them, to ensure the creation of new ideas, products, and services.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Economy and Sustainable Development in cooperation with Croatian Agency for small economy, Innovation and Investment (HAMAG-BICRO)</p>
<b>Budget</b>	<p>National (planned): 88.3 million. EUR 25,4 million of which has been spent EUR</p> <ul style="list-style-type: none"> <li>○ NRRP (C1.1.2. R3) budget: 37,29 million EUR</li> <li>○ PKK 2021-2027 budget: 51 million. EUR</li> </ul>
<b>Expected impact</b>	<ul style="list-style-type: none"> <li>• To date, 457 financing decisions worth 26 million have been adopted under the NRRP. EUR.</li> <li>• 1.043 SMEs received grant support by 2027</li> </ul>

3.2.22 Measure 8.4 — Dissemination of the network of Digital Innovation Hubs (DIH) and European Digital Innovation Hubs (EDIH)<sup>26</sup>

<b>New measure</b>	No - C1.1.2. R4-I1 support for Digital Innovation Hubs
<b>Description of the measure</b>	<p>Content of the measure:</p> <p>In line with the goals of the EU economy digitalisation policy by 2030, one way to achieve them is to expand the network of digital innovation centres (DIH) and European digital innovation centres (EDIH) across the EU.</p> <p>European Digital Innovation Hubs (EDIH) are non-profit consortia that are part of the European EDIH network and are composed of companies, private and public scientific organisations, citizen associations and state and public sector stakeholders, aimed at</p>

<sup>26</sup>Digital objective 9: the Union facilitates the growth of its innovative scale-up (growth) companies and improves their access to finance, which will at least double the number of unicorns in Europe

developing and providing services to enterprises and the state and public sectors, in particular small and medium-sized enterprises, in the field of innovation and digitalisation of products, services, business and digital skills development, with a focus on advanced technologies (artificial intelligence, high-performance computers, cybersecurity, big data and the Internet of things).

EDIHS provide four types of services:

- 1) **Pre-investment testing**, namely, allowing businesses and users from the state and public sectors to test and experiment with the services and products they plan to develop, before investing in them
- 2) **Skills and training**, namely, organizing trainings and trainings in the field of advanced digital skills development.
- 3) **Access to finance**, namely, providing support to businesses in finding funding sources for projects in the fields of innovation, digitalization and advanced technologies.
- 4) **Networking and strengthening the innovation ecosystem**, i.e. developing the role of intermediaries between companies and organisations that need new technological solutions on the one hand and companies, especially start-ups and SMEs that have market-ready solutions on the other.

The EDIH concept was developed by the European Commission (EC), primarily to strengthen the European Union (EU) capacities in the fields of artificial intelligence, cybersecurity, high performance computing, the development of advanced digital skills, the digital transformation of public administration and the digitalisation of business and business. In short, EDIHS are conceived as key catalysts for the digital transformation of the EU economy and society. EDIHS also help to establish and strengthen public-private partnerships in the field of innovation and strategic R&D, in order to ensure broad cooperation between academia and industry by involving stakeholders from different value chains.

Consequently, at EC level, EDIHS were conceived as project-funded consortia proposed by the Member States, which are networking and coordinated at EU level. **EDIH will also provide the above services below market price or free of charge to businesses and the public sector as part of its projects.**

50% of THE value OF THE EDIH activity is financed in the next 7 years under the Digital Europe 2021-2027 programme. The second half of the value of the projects had to be provided at Member State level or by EDIH private funds.

MINGOR supports THE establishment OF EDIH in THE Republic of Croatia from the very beginning of the idea at the EU level. MINGOR initiated the establishment of EDIH consortia at national level, held information days, selected national candidates for EDIH on a public call, provided advisory and political support and eventually secured two sources of co-financing OF EDIH projects by 2029. MINGOR has co-financed the activities of Croatian EDIH within the framework of investment C1.1.2. R4-I1 support to Digital Innovation Hubs of the National recovery and Resilience Plan 2021-2026. (NRRP) by the end of 2025 and through the Competitiveness and Cohesion Programme 2021-2027 by the end of 2030.

IN 2020, MINGOR launched a public call for selection of national candidates for EDIH, so that they could apply to EC calls for co-financing from the Digital Europe 2021-2027 programme. On the basis of clear and transparent technological, sectoral and regional coverage criteria, five national candidates for EDIH were selected.

On the first call for funding of EDIH projects under the Digital Europe Programme 2021-2027 (DEP) opened in November 2021, four Croatian EDIH (**AI4Health** - coordinator of the Institute Rudjer Boskovic, **EDIH Adria** - coordinator of the University of Rijeka, **CROBOHUB + +** - coordinator of the Faculty of Electrical Engineering and computing of the University of Zagreb, **JURK** - coordinator of Sisak-Moslavina County Regional Agency) entered the financial envelope of the programme.

The aforementioned EDIHS signed contracts for co-financing projects with the EC in the fourth quarter of 2022. **One project started activities in December 2022 and the other in early 2023. The projects last 3 years (until the end of 2025).**

**Grant agreements between EDIH Coordinator and MINGOR were signed on 15 March 2023.**

The total value of the projects is EUR 10,842,265, of which the EC pays half. The second half of the value of the **EUR (5.133.299 projects)** was provided under the NRRP on the MINGOR budget item by the end of 2025, which resulted in the financial construction of the projects

Within THE FRAMEWORK OF NRRP reform C1.1.2. R4 establishment of a system of digital innovation centres and related investments I1 support for digital innovation centres, the aforementioned co-financing of EDIHS and creation of a framework for the establishment and monitoring of digital innovation centres in Croatia (EDIH and DIH) was ensured. The total value of the investment is EUR 7,498,839,00.

DIHS support further digitalisation of the economy and are an important tool to support the digitalisation of SMEs and represent a single point of contact (one-stop-shop) providing technical expertise, “pre-investment testing” service, various educational programmes for users, and advisory and other key services to companies seeking to explore the possibilities of digitising business. Strengthening Europe's competitiveness and building stronger innovation capacity and more efficient and faster diffusion of innovation between EU Member States requires strengthening national and regional innovation ecosystems to support the development of the digital economy. The Competitiveness and Cohesion Programme 2021-2027 will also support the national network of DIHS, in support of the establishment, expansion of the service portfolio and networking with regional and foreign DIHS. The current allocation for the operation is EUR 22,617,138.

This measure will support activities to improve business digitalisation, develop entrepreneurs' digital skills, foster digital innovation, and strengthen the digital innovation ecosystem.

Link to target:

	<p>The widening of the (E)DIH network will foster an innovative and smart economic transformation, fostering digitisation research and innovation initiatives to contribute to the European Union target, which plans to reach at least the basic level of digital intensity by 2030 by more than 90% of MEPS.</p> <p>Tentative timeline</p> <p>The measure will be implemented by 2030.</p> <p>Responsible authority: Ministry of Economy and Sustainable Development</p>
<b>Budget</b>	<p>The total estimated allocation is EUR 30,115,977</p> <ul style="list-style-type: none"> <li>○ NRRP (C1.1.2. R4-I1): EUR 7,498,839,00 <ul style="list-style-type: none"> <li>▪ Of which: EUR 3,336,603.82</li> </ul> </li> <li>○ PKK 2021-2027 (PO1 II): EUR 22,617,138 <ul style="list-style-type: none"> <li>▪ Funds not yet spent</li> </ul> </li> </ul>
<b>Expected impact</b>	<p>Further to the expected impact of the measures to support the establishment and operability of EDIHS and DIHS, MINGOR expects the successful implementation of the projects of the aforementioned 4 EDIHS by the end of 2025 and the continuation of their project activities by the end of 2029. Also, after analysing the current system of digital innovation centres in Croatia and developing the National Framework for establishing and monitoring the system of digital innovation centres within THE FRAMEWORK of THE NRRP, we expect a mapped system of DIHS in Croatia in terms of their legal form, operational, technological and sectoral content and coordination, monitoring and evaluation of their work at the national level.</p>

### 3.2.23 Measure 9.1 – Croatia joining the EDICS<sup>27</sup>

<b>New measure</b>	Yes.
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>Under EDIC projects, EU Member States can pool resources and work closely together to build digital capacities that would be difficult to achieve themselves. Quantum computers, 5G, development of chips II. Generations, quantum, and space communication, blockchain, related public administrations, are just some of the projects that Member States can jointly launch.</p>

<sup>27</sup>Digital objective 9: the Union facilitates the growth of its innovative scale-up (growth) companies and improves their access to finance, which will at least double the number of unicorns in Europe

	<p>The Republic of Croatia is currently involved in several EDIC projects, and participation in new EDIC projects will be continuously encouraged. More information on EDICS can be found in Chapter 5.1 Multistate projects.</p> <p><i>Link to target:</i></p> <p>The expansion of THE EDIC project portfolio will encourage innovative and smart digitisation research and innovation initiatives to contribute to the European Union target, which plans to support company growth by 2030 and provide funding to double the number of unicorn companies in the EU.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	Not applicable
<b>Expected impact</b>	<i>Not known</i>

3.2.24 Measure 9.2 — Diversification of capital markets and improvement of access to alternative financing

<b>New measure</b>	Non - C1.1.1. R5 diversification of capital markets and improvement of access to alternative financing, C1.1.1. R5-I1 Investment in equity and quasi-equity financing instruments (PE)
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>Specialised sources of equity/quasi-equity financing (venture capital funds), such as venture capital funds (private equity funds), mezzanine funds, VC funds (including acceleration/accelerator component), technology transfer funds are still underdeveloped or do not exist on the Croatian market. The venture capital market continues to develop at a slower pace. Croatia currently has a small number of local venture capital fund management companies and they have limited organizational capacity as well as relatively small managed assets. In addition to management companies, there are also very few potential investors in venture capital funds (4 pension funds and, in rare cases, insurance companies and banks) in the market, therefore, any fundraising exercise requires significant public intervention. Investors have no incentive and face limitations in investment activities.</p> <p>Digitalisation of services providing EU funding opportunities improves access to public funding. The funds also include financial instruments that represent a new way of using EU funds and come in the form of credit lines, guarantee schemes and venture capital</p>

funds.

The main target of the reform is to create a clear legal framework for crowdfunding investments and to improve the conditions for raising funds for new private (equity/quasi-equity) equity funds. Increasing legal certainty for this form of investment, as well as raising awareness and promoting different sources of funding among potential investors, should contribute to the development of initial funding for technology transfer, innovative companies, and start-ups, as well as to the growth of mature companies.

In order to achieve this goal, it is planned to:

- develop a framework regulating crowdfunding platform service providers and guaranteeing users' rights, with a focus on operational and financial transparency, financial control and information and payment security, while simultaneously reviewing other parts of national legislation potentially hampering the use of this alternative channel of company financing;
- review the AIF Act, with the aim of reducing the regulatory burden on AIFMs and simplifying their operations and the process of setting up alternative investment funds, which will ensure wider access to this type of financing for domestic companies, and ensure that domestic AIFMs do not operate under less favourable conditions than companies from other Member States that can offer alternative investment funds managed by Croatian investors through the freedom to provide services regime
- support the establishment of a regional technology transfer fund and/or support the component of the accelerator to raise VC funds/incubators
- provide additional capital to established private equity funds (private equity) to enable an adequate response to the COVID crisis.

Furthermore, investing in equity and quasi-equity financing instruments (C1.1.1. R5-I1) will ensure faster development of companies that cannot obtain funding from traditional financial institutions. It is necessary to invest in increasing the size of venture capital funds that are active and require additional funds from investors or are in the process of setting up (funds developed in cooperation with the EIF). HBOR will also, in case of need, invest in new funds or co-invest (Co-Investment) in projects in which funds invest with the EIF. Furthermore, the initiative encourages the innovation and digitalisation of society, since HBOR invests in funds in accordance with its strategy that emphasise: (i) the development of start-up entrepreneurs; (II) the development of ICT activities; (III) the digital transformation of the economy; (IV) technology transfer, research and development; (v) energy efficiency and renewable; (VI) Sustainable transport and transport infrastructure, etc.

*Link to target:*

By creating a clear legal framework for crowdfunding investments and improving the conditions for raising funds for new private (equity/quasi-equity) capital funds, increasing legal certainty for this type of investment, but also raising awareness and promoting different sources of funding will contribute to the development of initial



	<p>funding for technology transfer, innovative companies and start-ups, creating a positive environment for the development of new unicorns.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented by 2026.</p> <p><i>Responsible authority:</i></p> <p>Ministry of Finance and Croatian Financial services Supervisory Agency, Croatian Bank for Reconstruction and Development</p>
<b>Budget</b>	National (NRRP): EUR 29,862,225 from RRF Grant allocation
<b>Expected impact</b>	<i>Not known</i>

3.2.25 Measure 10.1 – improvement of the State information infrastructure<sup>28</sup>

<b>New measure</b>	No – NRRP: C2.2. R3-I2 advancement of digital infrastructure and public sector services by developing a national archive information system and strengthening the national archive network, C2.3. R2-I1 establishment of a central interoperability system, C2.3. R3-I1 upgrading of the shared services Centre, C2.3. R3-I6 investments in State information infrastructure networks; National Plan for the Development of public Administration by 2027 - specific target 2: Digital transformation of public administration
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The basis for further digitalisation of public administration is timely planning, development, and promotion of the use of common digital solutions and information infrastructure in the public sector, as well as the Centre for shared services (CDU) as an organizational and business model for providing common solutions and information communication technology services to the public sector. Pursuant to the State information infrastructure Act (NN 92/14) and the Regulation on organizational and technical standards for connection to State information infrastructure (NN 60/2017), capacity expansion and upgrading of the existing sovereign state cloud (shared services Centre – CDU) will continue. This capacity building of the CDU can be implemented in several different ways that are consistent with the relevant legislative framework, including reliance on commercial solutions and the private sector. Development of CDU is one of the long-term priorities of the state, which is why the project was declared a strategic project of the Government of the Republic of Croatia.</p> <p>Since July 2023, five new functionalities have been available to CDU users: I) Information services Management Platform, II) Portal content Management Platform, II) Central</p>

<sup>28</sup>Digital objective 10: 100% of critical public services are available online and, where relevant, citizens and businesses in the Union are able to interact with public administrations online

information Security oversight system, IV) Platform for setting up a development and implementation environment on the Kubernetes Platform, and V) Blockchain Platform.

Furthermore, the identified challenges for the digitalisation of public services include the lack of integration and connectivity of public registers, which negatively affects the efficiency of the provision of public services and the quality and completeness of e-services provided and developed by public administration bodies. Therefore, this measure will consolidate core registers, integrate those registers into a national bus and establish a central interoperability portal in accordance with the European interoperability Framework (EIF), create standards and policies related to interoperability, harmonise legal frameworks and fully implement the once-only principle by 2023 in accordance with THE SDGR, as well as establish cross-border data exchange between EU Member States.

At the same time, documentation management will be improved with public authorities, the judicial system and other documentary and archival material creators that will ensure responsible and transparent operations. The provision of services by public authorities and all other material creators will be ensured regardless of the work they do, which will enable greater availability of materials, protection of citizens' rights. The planned investments will contribute to reducing the cost of space, equipment, and people for material creators as well as to strengthening their capacity to manage documentation in digital form.

Finally, in order to improve the operation of the DII network used by public law bodies in Croatia, a new network architecture will be designed that will meet the needs of the bodies in the next period, the existing building base will be upgraded and the capacities of telecommunication links between network nodes will be increased. This will ensure that all authorities have broadband access to the high-capacity (10Gbps) network. A change will be made to the network management model to ensure centralised funding and care for all services offered by the network. Users and all their locations will be connected to the single network and a monitoring centre and engineering support system will be established for users of the national information infrastructure network. Given the specificities that may lead to a disruption of the network (which is the basis for the operation of all state administration information systems), this system should ensure the availability of assistance to its users in working hours 24 hours a day, 7 days a week.

*Link to target:*

The improved state information infrastructure system will contribute to the standardization of digital services and the efficiency of providing them, the rationalization of the costs of the entire ICT system of public administration, as well as the reduction of electricity consumption, and thus environmental pollution and the impact on climate change. This intervention will also help increase citizens' trust in public

	<p>administration, as well as help build a common European competitive, green and secure infrastructure.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for Digital Society Development, Ministry of Culture and Media</p>
<b>Budget</b>	<p>As part of the NRRP (2021-2026), a planned investment of 115 million. EUR:</p> <ul style="list-style-type: none"> <li>○ <i>C2.2. R3-I2 advancement of digital infrastructure and public sector services by developing a national archive information system and strengthening the national archive network</i> <ul style="list-style-type: none"> <li>▪ total budget of the project (planned funds) 34.501.534.54 million. EUR</li> </ul> </li> <li>○ <i>C2.3. R2-I1 establishment of a central interoperability system:</i> <ul style="list-style-type: none"> <li>▪ total project budget (planned funds) of EUR 13,951,894,35, of which EUR 175,409,07 was spent</li> </ul> </li> <li>○ <i>C2.3. R3-I1 upgrading of the shared services Centre:</i> <ul style="list-style-type: none"> <li>▪ total project budget (planned funds) EUR 34,501,534,54, of which EUR 17,890,132,74 was spent</li> </ul> </li> <li>○ <i>C2.3. R3-I6 investments in State information infrastructure networks:</i> <ul style="list-style-type: none"> <li>▪ total project budget (planned funds) EUR 31,362,886.19, of which EUR 15,827.86 was spent</li> </ul> </li> </ul> <p>The source of financing for the period after 2026 will be subsequently identified.</p>
<b>Expected impact</b>	<ul style="list-style-type: none"> <li>• Consolidation of 75 registers out of unknown number of total registers in the Republic of Croatia (TSI project) is planned</li> <li>• by the end of 2Q/2024, the National Archive information system (C2.2. R3-I2) was established</li> <li>• by the end of 4Q/2024, the core part of DII (C2.3. R3-I6) was established</li> </ul>

### 3.2.26 Measure 10.2 – Standardisation and digitalisation of all public services<sup>29</sup>

<b>New measure</b>	No – OPCC 2014-2020, project: implementation e. Standards and further improvement of the electronic services system, National Plan for the Development of public Administration by 2027 Specific target 2: Digital transformation of public administration
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>Croatia recently adopted the Standard for the Development of public e-services, i.e. a set of guidelines defining policies for the Development and Management of e-services. The aim is to ensure the uniformity of e-services in the country, the accessibility and ease of</p>

<sup>29</sup>Digital objective 10: 100% of critical public services are available online and, where relevant, citizens and businesses in the Union are able to interact with public administrations online

use for the user himself and the minimum level of quality and accessibility to be achieved during the development and upgrading of the e-service. With the proposed conclusion, public sector bodies are obliged to ensure the use of standards when developing new and upgrading existing e-services, while the Central State Office for Digital Society Development will provide advice, education, supervision, and control of the implementation of standards.

Furthermore, the e-citizens system was put into public service in the redesigned form in April 2021 and integrated services in the redesigned form. The main target of public electronic services is to save citizens and entrepreneurs time, enable communication with public authorities from anywhere, quickly, and efficiently address requests addressed to public sector bodies. Accessibility is raised for people with disabilities or all those who have certain difficulties in using the content displayed via the screen (e.g. dyslexia). e-citizens are now adapted with the interface and mobile devices, with a menu in which visual elements can be adjusted to visually impaired (high contrast), dyslexia (special font) and resized text within the interface.

In the coming period, this measure will ensure appropriate implementations of defined ones. Standards through continued investment through implementation of e. Standards and further improvement of the electronic services system. An appropriate information system will be established to support all processes and forms defined within e. Standards to ensure a clear picture of the development status and improvement of e-services, enable all stakeholders to monitor the development status of individual e-services, and that in one central place there is a repository of all documents and artifacts created through e-services development projects. A portal will be established with all relevant information on the development of e-services, developed standardised user interfaces (graphic design) as building blocks for the development of e-services, developed rules and guidelines for the development of graphic interfaces, analysed life situations and created their register, and based on it defined priorities of needs of citizens and business entities in the improvement or development of new e-services.

At the same time, in accordance with the standards of development of public e-services in the Republic of Croatia, established quality management system in the public administration and the register of living situations, the approach to further digitalization of public services will be based on analysis and documentation of public service from the perspective of user travel and experience (user journey and experience). This will take into account the capabilities and opportunities of different user groups under Directive (EU) 2019/882 of the European Parliament and of the Council on accessibility requirements for products and services (OJ L 151, 7.6.2019.). For these life situations, it is necessary to identify the competent institutions, list and then optimize all administrative steps for a particular event and connect the institutions to provide certain events as part of a single end-to-end service that “guides” the user throughout the process. Furthermore, it will be necessary to redesign business processes through

	<p>simplification of procedures, followed by redesign of services with change of regulatory and administrative requirements.</p> <p>Procedures will be digitised according to priorities established in cooperation with users and existing assumptions (digitalised registers allowing automatic conclusion), focusing on the digitalisation of complete services and/or life events rather than individual processes or only one part of the process or one part of the service if the service consists of several related processes and actions before different bodies. In doing so, they will be guided by examples of successfully simplified and digitised procedures (e.g. e-newborn) so far. Actions will initially focus primarily on analysing regulations and digitising procedures and processes in the administrative field of particular interest to economic operators and citizens and the administrative areas with the highest number of procedures, such as those in the administrative field of economy and agriculture.</p> <p>An important feature of these services will be the capacity of anticipation – namely, following the information on the occurrence of a certain life situation, the system will proactively inform citizens about all their connected newly realised rights, and enable them to solve them through a unique digital system. These e-services will be available from anywhere and at any time to all citizens and business entities of Croatia and the EU, i.e. the European Economic area (EEA). As is currently the case with the new e-citizens interface, services must be accessible via all electronic devices and comply with digital accessibility rules and, where appropriate, be available in English.</p> <p>It is also planned to continuously digitise public services for (G2B) undertakings, as described in measure 8.3.</p> <p><i>Link to target:</i></p> <p>Establishment of the portal and information system for the implementation of e. Standards, the Register of living/Business situations and related e-services and building blocks of user interfaces (graphic design), as well as education on the optimal use thereof, are a prerequisite for all public services to be accessible to all citizens and businesses in digital form. At the same time, all public services will be digitised continuously to make all public services available in digital form by 2030.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	Estimated investment of EUR 1,181,219,13

	<ul style="list-style-type: none"> <li>○ 85% co-financed by the EU from the European Social Fund under the operational Programme “effective human resources” 2014-2020</li> </ul>
<b>Expected impact</b>	Not known

3.2.27 *Measure 10.3 – Strengthening human capacities and training of digital competency officers<sup>30</sup>*

<b>New measure</b>	No – National Plan for the Development of public Administration until 2027 Specific target 2 Digital transformation of public administration, and specific target 3. Development of human resources in public administration
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The complexity and comprehensiveness of the tasks put before the public administration on a daily basis require educated professionals, whose knowledge and skills need to be continuously upgraded through the lifelong learning system of civil servants. In the context of digitising all public services for citizens and entrepreneurs, national officials need digital competences to successfully implement e-services for citizens and entrepreneurs. Therefore, training of civil servants for the provision of public e-services will be carried out.</p> <p>In line with the current strategic documents and existing assessments of the training needs of officials, the importance and need to develop and strengthen digital competences in 5 areas (information processing and it literacy, communication and cooperation, digital content creation, security and problem solving) are indicated in order to contribute to the efficiency and improvement of the business productivity of the public administration. Development and implementation of education on preparation and implementation of activities, initiatives, and projects of digitalisation in public administration bodies will be realized with the assistance of the State school for public Administration and, if necessary, by mobilising cooperation and/or partnership with actors from the private and non-governmental sector.</p> <p>At the same time, the introduction of a competence model will be encouraged in order to redefine the knowledge and competences necessary for performing the tasks in the public administration, with new training programmes for the development of digital and green competences and management competencies. The development and introduction of competence systems, as a tool for human resources management, is an important step towards a higher degree of professionalisation of public administration. The introduction of a competence model in the public administration is also a prerequisite for the establishment of training and training programmes for work in the public administration aligned with the needs of the service, policies, targets, and priorities whose implementation will require new knowledge and skills from employees, such as digital competences. The introduction of the competence system will be realized by carrying out an analysis of the necessary competencies, establishing the key competencies</p>

<sup>30</sup>Digital objective 10: 100% of critical public services are available online and, where relevant, citizens and businesses in the Union are able to interact with public administrations online

	<p>necessary for performing individual categories of work in the public administration, and parallel development and introduction of IT solutions.</p> <p>In addition to educating civil servants of public law bodies through the State school for public Administration, at the level of management of available e-deposits for the purposes of the system and management of control of cohesion envelope funds, the competent Ministry of Regional Development and EU funds continuously educates employees of public law bodies whose employees form part of these systems.</p> <p><i>Link to target:</i> Strengthening the digital competences of human capacities is the basis for the efficient implementation of all e-services to citizens and entrepreneurs, and the better quality of e-services will motivate a greater share of citizens to use them.</p> <p><i>Tentative timeline</i> The measure is implemented by the end of 2030.</p> <p><i>Responsible authority:</i> Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	<ul style="list-style-type: none"> <li>• Introduction of a programme for the improvement of digital skills/competences of officials EUR 230.929,9 <ul style="list-style-type: none"> <li>○ The funds are planned for 2027 as part of the Action Plan for the implementation of the National Plan for the Development of public Administration by 2024 (with an estimate by 2027)</li> </ul> </li> <li>• As far as the funds spent so far for this measure are concerned, the project “Development of the competence Framework for public Administration employees” with a total project value of EUR 1,737,609,12 has been completed.</li> <li>• The source of funding for the post-2027 period will be subsequently identified.</li> </ul>
<b>Expected impact</b>	Not known

3.2.28 *Measure 10.4 — establishment of a centralised customer support system for all e-services<sup>31</sup>*

<b>New measure</b>	No – NRRP: C2.3. R3-I3 establishment of a single contact centre for all e-public helpdesk services; National public administration Development Plan by 2027, specific target 2: Digital transformation of public administration
<b>Description of the measure</b>	<i>Content of the measure:</i> In order to improve interaction between citizens, businesses and public services when it comes to digital public services, a single one-stop-shop (one-stop-shop) will be

<sup>31</sup>Digital objective 10: 100% of critical public services are available online and, where relevant, citizens and businesses in the Union are able to interact with public administrations online

established as a centralised helpdesk system. It will provide citizens/businesses with quicker access to the requested information, but also allow them to comment, propose and evaluate on digital public services or to interview via a virtual assistant. In this way, users will be able to express their satisfaction or dissatisfaction with the service provided. Based on the information obtained, efforts will be made to continuously improve services.

The PPP platform is conceived as a central system consisting of three key components:

1. A central JKC as a multi-channel information system/platform (omnichannel) that is fully functional on the CDU infrastructure (including all necessary software and telephony for agents/civil servants) and that will be accessible to end users according to the software as a Service (SaaS) principle.
2. Central infrastructure for orchestration and automation of the process of support to citizens and business entities through enhanced functionalities of the gov.hr portal and through functionalities of the JKC.
3. Standardised integration interface for connecting JKC to all other external systems (other ticketing systems, NIAS, eOfficial, GSB, etc.).

Within the CCA, Customer relationship Management (CRM) and Customer experience Management (CEM) will be implemented as a strategic determinant for strengthening customer satisfaction of state and public administration. Using these two methods to collect data from state administration users and analyse them (their needs, system difficulties) as such would serve as an input to further development and improvement of e-services as well as e-citizens system with components that make it (NIAS, OKP-PKP, e-Business). The platform will also be located within the CDU environment and will comply with all provisions of the Cybersecurity Act and Regulation (EU) 2019/881 (“Cybersecurity Act”) to ensure cybersecurity of the system.

This contact centre will manage citizens' relations and continuously improve their user experience using specialised platforms and advanced technology, such as big data technology (big data), artificial intelligence and machine learning. STRONG artificial intelligence with machine learning will be optimized to read, learn and create new values from the collected data. Based on the data obtained and their processing, JKC will perform predictions of the problem when interacting with the user, learn from his previous queries, and provide a better analysis of mood and intentions, recommendations and problem solving.

AS a central system, JKC will have a link to all service providers – APIS IT, Fina, CARNet and AKD. Also, THE JKC system will connect with all state administration bodies, as well as local and regional self-government bodies. If the bodies have their existing customer support system, they will connect to the CCA and THE CCA will be the central and only platform for communication between state administration bodies, local and regional (regional) self-government units and users.



	<p>For e-services relating to the management of cohesion envelope funds managed under a single platform, centralised user support has been established for the subsystems included in the platform EU funds for the management of cohesion envelope funds, which continuously improves and prepares this e-service segment for integration with THE JCC.</p> <p><i>Link to target:</i></p> <p>The aim is to set up a system to provide information and customer support to citizens and businesses in a single centralised location. JKC will transform the way public officials communicate with users and enable transparency as users will be able to assess the quality of interaction with public officials.</p> <p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until December 2024.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	<p><i>C2.3. R3-I3 establishment of a single contact centre for all e-public services for the provision of customer support:</i></p> <p>total project budget (planned funds) EUR 4,146,991.57, of which EUR 143,660.19 was spent</p>
<b>Expected impact</b>	<ul style="list-style-type: none"> <li>• Established JKC with defined standard key business processes and rules, while process variations (flows) and lower-level rules are tailored to individual users of THE JKC (instance) system.</li> <li>• Functionally improved segment of the gov.hr portal where citizens can easily navigate the search for the desired information related to public e-services (self-service tools such as chatbot/AI, virtual agents, FAQ, instructions, etc.) and easily find public e-services relevant to their living situation.</li> <li>• Functional channels in place through which citizens and entrepreneurs, at any time of searching the gov.hr portal or using the public e-service, can contact THE JKC by sending a request or support request.</li> <li>• Established mechanisms for monitoring the resolution of queries/requests of citizens and entrepreneurs through relevant reports for supervisory authorities and continuously informing users about the status of the resolution of their queries/requests.</li> <li>• Automation of the process of supporting users of public e-services is in place wherever possible.</li> </ul>

3.2.29 Measure 10.5 — Creation of a digital mobile platform<sup>32</sup>

<p><b>New measure</b></p>	<p>No – NRRP: C2.3. R3-I8 Digital mobile Platform Creation</p>
<p><b>Description of the measure</b></p>	<p><i>Content of the measure:</i></p> <p>The goal of creating a mobile platform for eShos is to enable citizens to easily and quickly use the services of state institutions on their smartphones, at any time and anywhere. The aim is also to create preconditions for the integration of existing and future services of public administration bodies (eShos) in a simple and standardized way accessible to citizens.</p> <p>Using the latest technologies and standards, a platform will be built that represents a standardised and uniform way of implementing and presenting the services of public administration bodies on mobile platforms. Users most often use mobile applications that are relevant and make life easier, thus improving general user experience. The mobile platform will therefore: (i) provide a simple, intuitive and personalised overview of services; (i) provide the State with the potential to interact with its citizens in real time; (II) use technology to send notifications and information about services; (III) provide mobility to citizens.</p> <p>The measure entails upgrading and adapting existing services for mobile devices and connecting all registers and bases to the Central data Exchange bus (GSB). It will also enable the ultimate upgrade of the NIAS authentication system to become compatible with the latest authentication trends for mobile platforms, with the implementation of modern biometric application login methods.</p> <p>The mobile platform will use big data methods as well as artificial intelligence metrics for data processing. In addition, it will contain a biometric authentication module that will contain biometric data on the mobile device and use the CDU biometric authentication platform to access services.</p> <p><i>Link to target:</i></p> <p>The growing use of smartphones and the creation of interactive applications give public service providers the opportunity to better connect with citizens to make their interactions faster, simpler, and more efficient. The wide availability of internet infrastructure, the rapid expansion of the 5G network, the availability of the IoT network, as well as other data access channels allow citizens to interact electronically with public service providers. This brings the services closer to the users/citizens.</p>

<sup>32</sup>Digital objective 10: 100% of critical public services are available online and, where relevant, citizens and businesses in the Union are able to interact with public administrations online

	<p><i>Tentative timeline</i></p> <p>The measure will be implemented continuously until 2030.</p> <p><i>Responsible authority:</i></p> <p>Central State Office for the Development of a Digital Society</p>
<b>Budget</b>	<p><i>C2.3. R3-I8 Development of a digital mobile platform:</i></p> <p>ministerial budget of the project (planned funds) 4.263.571.04 EUR, of which 27.819.03 EUR was spent</p>
<b>Expected impact</b>	<p>By the end of 4Q/2024, 20 eServices were integrated into a mobile platform and operational for use</p>

3.2.30 Measure 12.1 — introduction of a digital identity card<sup>33</sup>

<b>New measure</b>	<p>No - C2.3. R3-I5 Digital identity card deployment Project</p>
<b>Description of the measure</b>	<p><i>Content of the measure:</i></p> <p>The project of introducing a digital identity card is part of the NextGenerationEU initiative and the National recovery and Resilience Plan of the Government of the Republic of Croatia 2021-2026 in the field of digital transformation of society and public administration. Currently, all citizens have the right to use a digital ID card.</p> <p>However, the target of the investment in question is to achieve a significant increase in the number of users of the electronic component eOI and mobile application ID while popularizing the use of electronic signatures in the segment of THE provision of TJV services to citizens and business entities. A total of 2,111,358 second generation electronic identity cards were issued at the beginning of September 2023, of which 1,649,505 were issued with both certificates. Furthermore, an increase in the number of users of electronic functionalities of the ID card and mobile ID application is planned for 300,000 users, which is also an indicator of the number of certificates issued for remote qualified certificates.</p> <p>The establishment of the system and the introduction of a digital identity card as well as the establishment of a mobile ID application increased the number of users, however the default indicator of 300,000 issued certificates for electronic signature will not be reached by the given deadline or end of 2023. The conditions for using the service are assured, but it is up to the citizens to decide whether to use them. The realization of this</p>

<sup>33</sup>Digital objective 12: 100% of Union citizens have access to secure electronic identification means (Eid) recognised throughout the Union, allowing them to fully control transactions involving their identity and personal data they share

	<p>target is very important for the implementation of this investment, but also for the development of digitalization of Croatian society, so the campaign aimed at citizens continues.</p> <p>With a view to the positive outcome of the implementation of the investment, AKD Ltd. proposed to modify the measurement of the indicator by accepting that citizens who applied for an identity card and were also issued identification and signature certificates, which enables them to request remote certificates in order to use digital signature services, are counted as users with a remote qualified signature certificate - i.e. citizens who were issued an identity card with the possibility to activate a certificate for a remote qualified electronic signature are included in the achieved value of the indicator.</p> <p>In agreement with the EC, the target was amended in such a way that the indicators within the investment - instead of 300,000, the provision of 100,000 remote eOI qualified electronic signatures with a final implementation deadline by Q4 2024. Also, Certilia mobile application will be downloaded 300,000 times via Google play store and App store and Certilia mobile applications and personal mobile credentials will enable at least 50,000 unique users to authenticate at least 700,000 times with the aim of logging on to e-services.</p> <p>Furthermore, regarding the digital wallet, a working group was formed in September 2021 and about 50 meetings have been held so far. However, the architecture of the digital wallet has not yet been agreed, nor has the final text of the Amendments to Regulation (EU) No 910/2014, which are the legal basis for the creation of the European digital wallet.</p> <p><i>Link to target:</i></p> <p>Although all citizens of the Republic of Croatia have access to the eOI, this measure will popularise the use of the eOI and establish a digital wallet.</p> <p><i>Tentative timeline</i></p> <p>Implementation of the measure is planned by the end of 2023</p> <p><i>Responsible authority:</i></p> <p>Ministry of the Interior</p>
<b>Budget</b>	National recovery and Resilience Plan (planned): 0.9 million EUR
<b>Expected impact</b>	<i>Securing 100,000 remote eOI qualified electronic signature certificates with a final implementation date by Q4 2024.</i>



#### 4 MAIN POLICIES AND MEASURES TO CONTRIBUTE TO THE GENERAL TARGETS

This chapter presents the main envisaged or implemented policies, measures, and activities, with a focus on key actions and best practices, which are expected to contribute to **the overall targets taking into account the Declaration on Digital Rights and principles.**

**Digital citizenship** - see the targets set out in the [Decision of establishing the Digital Decade Policy Programme 2030 \(2022/2481\) in Article 3 \(1\), letters \(a\), \(b\) and \(g\):](#)

<b>Measures</b>	
<b>1</b>	Updating of smart specialisation strategies
<b>Description</b>	<p>Starting in the previous financial period, the smart specialisation approach (S3) has become the basis for investment in research and innovation under the European Regional Development Fund (ERDF). This approach is based on the idea that smart specialisation brings together all levels of government, academia, the economy and civil society in designing and implementing a long-term growth strategy in each innovation ecosystem.</p> <p>Smart specialisation also fosters interregional cooperation on priorities of common growth potential. Facilitating cross-border access and collaboration between research, innovation and industry actors enables product development and process design, leading to new value chains across the EU.</p> <p>Croatia will update its R &amp; I strategies (RIS3) to build on what it has developed so far and implement improvements to regional and national innovation ecosystems to be financed through the ERDF. Particular attention will be paid to supporting regions in the industrial transition taking steps to expand their economic activities to more innovative and sustainable areas.</p> <p>the S3 by 2029 shall define the following thematic priority areas: I) Personalised health care, II) smart and clean energy, III) smart and green transport, IV) safety and dual use – awareness, prevention, response, rehabilitation, V) sustainable and circular food, VI) adapted and integrated wood products and VII) Digital products and platforms.</p> <p>The smart specialisation Strategy until 2029 was adopted by the Government of the Republic of Croatia on 13 December 2023.</p> <p>European Digital Rights and principles: <i>the implementation of this measure will foster digitalisation and specialisation of the workforce in digital products and platforms. Particular attention will be paid to the inclusion of vulnerable groups, such as the long-term unemployed, in new jobs in the digital labour market.</i></p>
<b>Budget</b>	n/p
<b>Duration</b>	<i>The measure was implemented in December 2023.</i>
<b>2</b>	Accession to the Declaration of commitment on women in Digital (Declaration of women)

<b>Description</b>	<p>The Declaration on commitment to women in the Digital World committed the signatory States to foster the active and important role of women in the digital society and to contribute to achieving gender equality in IT. For example, conferences will be organised for pupils in their final years of high school studies, but other activities will be carried out.</p> <p>European Digital Rights and principles: <i>the implementation of this measure will foster women's involvement in digital professions.</i></p>
<b>Budget</b>	n/p
<b>Duration</b>	In May 2019, the measure was implemented
<b>3</b>	<p><i>NRRP C4.3. R1-I1 advancing digitalisation of social benefits system between national and local level, C4.3. R1-I2 Development of web application on the possibility of achieving social benefits at national level, C4.3. R3-I2 advancing digitalisation of social welfare systems and connecting social welfare centres and social service providers, and C4.3. R3-I3 advancing digitalisation of social welfare systems and implementation of the methodology for calculating social service prices</i></p>
<b>Description</b>	<p>Investing in further development and upgrading of information infrastructure in the social welfare system will increase the efficiency and transparency of the social welfare system and improve the quality of life of citizens. Digitalisation of the system and linking the Croatian Social Labour Institute and social service providers aims to ensure data exchange, more efficient provision, and better control of social service costs, which is in line with the CSR for Croatia and the Council of Europe conclusions on shaping Europe's digital future.</p> <p>In order to enable insight into social benefits in the social protection system at the national level and information on the conditions for their realization at the national level during the five-year period, a web application would be developed through which every Croatian citizen could obtain information on social benefits in the social protection system at the national level that may be realised.</p> <p>Furthermore, the goal of the planned investment is to develop a part of the application for service providers founded by the Republic of Croatia and service providers with whom THE MURMSOSP has concluded a mutual relations agreement, which will be part of a unique IT system of social welfare. The establishment of a single IT system will provide a single digital platform for monitoring and analysing data on social welfare users and services. At the same time, automated data collection, quality analysis and calculation of social service prices will be improved through a new data management solution by all social service providers financed from the state budget (state institutions and non-state service providers with which the ministry responsible for social welfare affairs has concluded cooperation agreements).</p> <p>European Digital Rights and principles: <i>the implementation of this measure will foster the digitalisation of the entire welfare system. The implementation of digitalisation will put people at the heart, i.e. websites and digital social services will be easily accessible for people with</i></p>

	<i>disabilities. At the same time, all social welfare actors will be connected, while respecting the protection of users' data.</i>
<b>Budget</b>	<p>EUR 106,182,4 (C4.3. R1-I1)</p> <p>EUR 404.866,2 (C4.3. R1-I2)</p> <p>EUR 530.936,0 (C4.3. R3-I2)</p> <p>EUR 663,635,0 (C4.3. R3-I3)</p>
<b>Duration</b>	1/2022.-12/2025.
<b>4</b>	<i>NRRP: C5.1. R2-I2 Procurement and implementation of equipment for the establishment of National Oncology Network and National Oncology database, C5.1. R4-I3 Digitalization of drug pathways through health institutions at secondary and tertiary level of health care, C5.1. R4-I4 Development of a system for monitoring and prevention of shortages of medicinal products in the Republic of Croatia, C5.1. R4-I5 introduction of a system for monitoring outcomes of treatment of outpatient patients with emphasis on chronic patients in public pharmacies, and C2.3. R3-I4 Consolidation of THE health information infrastructure CEZIH</i>
<b>Description</b>	<p>It is necessary to establish a National Oncology information Network for the purpose of the National database of Oncology data to which data from hospital information systems and other systems will be connected and entered by automation and which will be compatible and parallel with hospital information systems, which will not further burden healthcare professionals. The establishment of a single, uniform it platform for connecting, monitoring and optimal treatment of oncology patients is the basic tool in planning organisational and structural changes, recognising risks and the basis for implementing further phases of the strategy, including the establishment of a radiotherapy network. In the comprehensive national network of oncology data on the it platform, all patients will receive oncology care in accordance with guidelines and a unique/complete database on the quality of oncology care.</p> <p>Furthermore, in the field of health care, digitizing the route of medicine through health care institutions at secondary and tertiary levels of health care completely digitalises the route of medicine to the patient in order to abolish paper documentation accompanying the medicine, reduce the consumption of medicines in departments and manage optimally the quantities needed to treat patients. Furthermore, by introducing a precise system for monitoring and analysing the distribution of certain medicinal products, Croatia would have a model for predicting and preventing shortages of medicinal products. Targeted management of these data would enable the health system to react in a timely manner through emergency import or through effective intervention in the list of medicinal products of the Croatian Health Insurance Fund by including a medicinal product of an additional manufacturer. In this way it is possible to ensure the availability of the medicine at the most favourable price, which is extremely important for the treatment of oncological diseases.</p> <p>At the same time, the introduction of a system for monitoring the outcome of treatment of outpatient chronic patients in public pharmacies is a model that would enable the Croatian health system to monitor the outcome of treatment and the justification of invested funds fully</p>



	<p>and transparently on medicinal products as the most common medical intervention of all modern health systems in the world.</p> <p>Furthermore, the consolidation of the health information infrastructure system (CEZIH) aims to achieve the following targets: (i) enabling the continuous, correct, reliable and safe operation of the central health information system; (II) establishment of a primary and secondary site meeting TIER 3 reliability and availability standards; (III) provision of data (backup) and monitoring of the operation of the system. The implementation of this investment will ensure the smooth operation and further development of the health information system in which all health data generated in Croatia is poured.</p> <p>European Digital Rights and principles: Digitalising the healthcare system will put people at the heart. Digitalisation of the oncology patient data network will connect all participants and facilitate treatment procedures. Digitalisation of the drug pathway and consolidation of CEZIH will also link all relevant procedures, which will facilitate the whole process for patients and medical staff. When introducing new digital solutions, special attention will be paid to patient data security and protection.</p>
<b>Budget</b>	<ul style="list-style-type: none"> <li>• 10.618.880, EUR 0 (C5.1. R2-I2)</li> <li>• EUR 2.508.521.4 (C5.1. R4-I3)</li> <li>• EUR 1.427.008,75 (C5.1. R4-I4)</li> <li>• EUR 570.786,3 (C5.1. R4-I5)</li> <li>• 13.4 million EUR (C2.3. R3-I4)</li> </ul>
<b>Duration</b>	1/2021.-12/2025.
<b>5</b>	<i>NRRP C5.1. R5 eHealth, C5.1. R5-I1 Digital Integration of operating theatres and robotic surgery in Split clinical hospital, C5.1. R5-I2 TELECORDIS, C5.1. R5-I3 Teletransfusion, C5.1. R5-I4 Digitalization and Integration of operating theatres equipped with robotic surgery in sister of Mercy clinical hospital, and C5.1. R5-I5 Digitalization and equipping of diagnostic units of Mercury clinical hospital</i>
<b>Description</b>	<p>The aim of the Croatian eHealth is to improve management capacities through more efficient use of data and foster innovative health solutions in order to better manage the health system.</p> <p>Structures, processes, and procedures should be established to introduce data analysis and reporting into existing decision-making practices and policies at the level of health service providers, followers, and policymakers. Algorithms should be built into the system to automatically convert pre-selected health data into health information that will inform key decisions. It recognised the need to upgrade data structures towards more comprehensive clinical concepts and exchange formats to support not only administrative and payment processes but also structured clinical data, the next set of international interoperability standards that would not only serve to provide health care to the individual, but also to manage</p>

	<p>the entire data and evidence-based system, using wider-scale analytics as well as the use of secondary health data.</p> <p>At the same time, digitalisation of operating theatres and the procurement of equipment for advanced treatment of cancer patients will change the way comprehensive treatment of patients with malignant diseases is treated, including integrated health care optimisation measures for oncology patients. This will improve health outcomes due to the introduction of a new model of patient care, especially new state-of-the-art surgical treatments. The digitisation and integration of operating rooms will optimise the planning, documentation, storage, and exchange of data on patients and types and methods of operating treatment. Robotic surgery will increase the number of surgeries performed by minimally invasive route, as well as the availability of this most advanced mode of operative treatment, which will affect the change in treatment outcome, i.e. increase patients' chances of cure.</p> <p>The proposed method of digitalization of cardiology services (TELECORDIS) also enables continuous monitoring of the condition of patients, especially those with chronic cardiac diseases. The expected results of the ECG Holter telemedicine service provide patients in remote and rural areas with access to specialist care, significantly increasing the availability of specialist health services in local outpatient centres, improving the efficiency of specialists, improving patient outcomes, significantly reducing waiting lists and the costs of providing this healthcare service.</p> <p>The Tele-transfusion project will contribute to a more rational use of human resources and the number of needed standby services by providing support to all stakeholders connected to the system that covers the project (hospital transfusion centres in the territory of Croatia, 35 of them) and the availability of the service in situations where the transfusion therapist cannot provide the same or is not in the home institution that needs the service.</p> <p>European Digital Rights and principles: The digitisation of operating rooms and the introduction of tele-transfusion will contribute to a more efficient use of data and foster innovative health solutions in order to better manage the health system. During the implementation of these activities, people will be put in the centre, so that solutions are in line with the expectations of medical staff and patients.</p>
<b>Budget</b>	<ul style="list-style-type: none"> <li>• C5.1. R5-I1: EUR 2,508,521,4</li> <li>• C5.1. R5-I2: EUR 557,373,6</li> <li>• C5.1. R5-I3: EUR 1,590,420.6</li> <li>• C5.1. R5-I4: EUR 7,618,070,6</li> <li>• C5.1. R5-I5: EUR 3.243.750,15</li> </ul>

<b>Duration</b>	By the end of 2023.
<b>6</b>	NRRP C2.3. R3-I10 Digitisation and computerization of the Croatian Employment Service (EHZZ)
<b>Description</b>	<p>The aim of the investment in question is to change and redefine business processes and to increase the quality level of services of the Croatian Employment Service towards end users (unemployed persons, employees, and employers) by digitalizing the system. The aim is also to establish a system that will enable the creation of new services for users with the possibility of continuously adapting active employment policy measures. The use of new IT solutions will speed up and automate the operations of the Croatian Employment Service. The aim is to develop modular and flexible solutions so that the CES system can be upgraded according to future needs and be ready to respond to all procedural and procedural changes in the short term. The level of transparency of the Croatian Employment Service will be increased. New online services will make it easier to work with users and reduce the needs of physical arrival in the CES. Security tools will increase the level of security and protection of the information system of the CES.</p> <p>European Digital Rights and principles: Digitising the HZZ system will facilitate access to services and communication of users with the HZZ. When defining the solution, man will be put at the centre of transformation. At the same time, the implementation of digital solutions with minimal environmental impact will be encouraged.</p>
<b>Budget</b>	7.6 tis. EUR
<b>Duration</b>	6/2020.-6/2026.
<b>7</b>	NRRP: C2.2. R3 Digital transformation of conservation substrates and archives; C2.2.R3-I1 establishment of digital infrastructure and public administration services by creating a system of conservation substrates
<b>Description</b>	<p>Further enhancing the efficiency of public administration is intended to be implemented through the development of e-services in the area of archives and cultural heritage. It is necessary to create new e-services that will remove existing administrative obstacles in obtaining different permits in accordance with legislation in the cultural and building sector. The public publication of conservation substrates with clear information on protection measures and acceptable changes in protected historical cores will ensure transparency and uniformity in the conduct of the public administration responsible (competent) for cultural heritage.</p> <p>Therefore, it is planned to develop and establish an e-service that will enable access to digital conservation substrates created for cultural and historical units. An organisational framework will be established, and e-service developed (e-conservatory base) and 60 publicly available digital conservatory substrates will be developed. This system will be an upgrade of the cultural heritage information system and will be compatible with the digital systems of other public law bodies that need data in the field of cultural heritage or whose activities are related to space</p>

	<p>management. It is also planned to strengthen capacities by educating experts to work on conservation substrates and to develop the necessary standards and criteria.</p> <p>European Digital Rights and principles: digitising conservation backgrounds will facilitate access to this e-service, making the process much easier for citizens. Furthermore, the service will be developed in accordance with public service development standards in the Republic of Croatia, and in order to make it accessible to persons with difficulties.</p>
<b>Budget</b>	C2.2.R3-I1: EUR 10,750,545,90
<b>Duration</b>	6/2021.-6/2026.

**Fostering leadership and sovereignty** - see the targets set out in [Decision on establishing the Digital Decade Policy Programme 2030](#) Article 3 (1), letters (c), (d), (e), (f), (i) and (k):

<b>1</b>	<i>NRRP C2.3. R3-I2 Strengthening the capacity of the police to combat cybercrime</i>
<b>Description</b>	<p>Within the framework of the Digital Croatia Strategy, great attention is planned to be paid to cyber security of all elements of the infrastructure, including technical and organisational measures for risk management, taking into account the latest technical developments used as part of the best cyber security practice, such as measures to prevent and mitigate the effects of incidents on the security of network and information systems. Implementation of this policy includes education in the field of information and cyber security with the aim of professional training and training of public sector body officials.</p> <p>European Digital Rights and principles: strengthening security capacity will contribute to the protection and security of citizens in the digital space, which directly contributes to strengthening the Declaration on Digital Rights and principles.</p>
<b>Budget</b>	NRRP: 1.6 million. EUR
<b>Duration</b>	4/2021.-12/2024.
<b>2</b>	<i>NRRP C2.3. R3-I15 establishment of application solutions in tourism with the aim of administratively relieving entrepreneurs and transforming tourism models towards sustainability</i>
<b>Description</b>	<p>The tourism sector is one of the most important for the national economy. Therefore, within the framework of the digital transition, it is planned to introduce measures related to the use of digital tools that will be used for promotion and confidence building in order to assure potential tourists that travel and tourism in Croatia are safe. This also implies investing in digital skills, cybersecurity and fostering digital innovation, and connecting tourism businesses and actors with existing data bases at local and regional level. This is particularly important in rural and remote areas where tourism is fragmented and highly dependent on the availability of information, transport, and travel.</p> <p>European Digital Rights and principles: Apps in tourism will facilitate access to services and communication by relevant stakeholders in the tourism sector. When defining solutions, man will be</p>

	put at the centre of transformation and solutions will be developed in accordance with the standard of public service development in the Republic of Croatia, in order to be accessible to all citizens.
<b>Budget</b>	NRRP: 5.3 million. EUR
<b>Duration</b>	1/2022.-12/2025.
<b>3</b>	<i>NRRP C2.3. R3-I11 Modernisation of ICT support of HZMO (eHZMO) and C2.3. R3-I12 Digitalization of HZMO Archive (eArchive)</i>
<b>Description</b>	<p>Furthermore, through the project Modernisation of ICT support of HZMO (eHZMO), by implementing new information and communication technologies, HZMO will increase its own efficiency and effectiveness, and increase the quality of services to its users. This project will contribute to strengthening the capacity of labour market institutions to improve the scope, quality and adaptability of services provided, which develop new services, invest in equipment and its applications, as well as information activities. Activities will ensure greater transparency and accessibility of data both for the needs of the HZMO as an institution and for the needs of the public.</p> <p>The project of digitizing the archive of the Croatian Pension Insurance Institute (eArchive) will introduce a system for managing the digital archive, scanning, and indexing archives. This continues the process of further digital transformation of HZMO as well as further investment in improving digital services and business. The project will contribute to the rationalization of costs and increase efficiency of HZMO operations, and the availability and quality of services to users.</p> <p>European Digital Rights and principles: digitising the HZMO system (user support and archives) will facilitate access to services and user communication with HZMO. When defining the solution, man will be put at the center of transformation. At the same time, the implementation of digital solutions with minimally harmful effects on the environment will be encouraged.</p>
<b>Budget</b>	<p>C2.3. R3-I11 17.1 million. EUR</p> <p>C2.3. R3-I12 6.2 million. EUR</p>
<b>Duration</b>	1/2021.-6/2026.
<b>4</b>	<i>NRRP C1.5. R1 establishment of a network of logistics infrastructure to strengthen the production chain in the fruit and vegetables sector</i>
<b>Description</b>	The digitisation of logistics distribution centres (LDCs) will enable the establishment of a modern and efficient traceability system in the fruit and vegetables sector, which will make it easier for producers assembled in the producer organisation to operate and will result in the development of digital technology for the benefit of all involved in the ownership and management structure of LDCs and ultimately for the benefit of citizens (consumers). The direct contribution of the reform “improving the use of natural resources and strengthening the food supply chain” to the digital transition will be achieved through targeted projects linking existing databases, facilitating access to information and online services for users, developing new digital public services of the agricultural administration, and fast action and transparency in procedures. Digitalisation of the food donation system will allow for

	<p>faster and more efficient communication between all stakeholders in the system, better matching of supply and needs and increasing the amount of food donated.</p> <p>European Digital Rights and principles: digitalisation of the Croatian Employment Service system will facilitate access to services and communication of users with the Croatian Employment Service. When defining the solution, man will be put at the centre of transformation. At the same time, the implementation of digital solutions with minimally harmful effects on the environment will be encouraged.</p>
<b>Budget</b>	81.8 million. EUR 16,2 million (investments, RRF) EUR (investments, co-financing by beneficiaries)
<b>Duration</b>	1/2021.-6/2026.
<b>5</b>	<i>NRRP C2.4. R2 improving corporate governance in state-owned enterprises of particular interest to the Republic of Croatia and central state-owned enterprises</i>
<b>Description</b>	<p>Furthermore, digitalisation will improve the management of state assets. An investment is envisaged regarding the improvement of the unified planning and reporting system through digitalization, within which the implementation of the project of implementation of business intelligence (BI) system of business monitoring of legal entities of special interest to Croatia is planned, and which plans to further improve the early warning system of business risks through software support.</p> <p>European Digital Rights and principles: When defining solutions for improving corporate governance, man will be put at the centre of transformation in order to make these solutions transparent and easy for monitoring companies of special interest to the Republic of Croatia.</p>
<b>Budget</b>	EUR 1,3 million
<b>Duration</b>	2/2021.-3/2024.
<b>6</b>	<p><i>NRRP:</i></p> <p><i>C6.1. R2 Development of a framework to ensure adequate skills in the context of green jobs needed for post-earthquake reconstruction.</i></p> <p><i>C6.1. R3 efficiency gains, administrative burden reductions and digitalisation of renovation processes</i></p>
<b>Description</b>	<p>As part of the building renovation initiative, in response to earthquakes in Zagreb and Petrinja, it is planned to improve the functionality and upgrade of the system and connect with other SYSTEMS of THE MMPGI - physical planning information system (ISPU) and the e-GOP system for electronic business. The implementation of the reform of strengthening knowledge on green (R2) jobs will provide new knowledge on the possibilities of implementing the digital transition in the context of post-earthquake reconstruction and will contribute to the use of BIM technology. The implementation of the one-stop-shop (R3) development reform will ensure a digital transition in the post-earthquake reconstruction process and simplify administrative processes, in order to facilitate the entire process</p>

	<p>for citizens, but also accelerate the overall renovation system. Administrative burden in the post-earthquake and energy renovation process will be reduced. Increasing data on seismic activities of the (R4) will ensure a digital transition, as it will ensure greater transferability and applicability of data in the spatial planning system. The R6 reform will ensure the implementation of a pilot project that will test the possibilities of developing AN ISGE-related energy monitoring model.</p> <p>European Digital Rights and principles: digitising the renovation process will facilitate access to services and user communication with relevant authorities. When defining the solution, man will be put at the center of transformation.</p>
<b>Budget</b>	<p>5,3 million EUR(C6.1 R2)</p> <p>4 million EUR(C6.1 R3)</p>
<b>Duration</b>	2/2021.-6/2026.
<b>7</b>	NRRP: C2.2. R1-I1 centralised selection system, and C2.2. R1-I2 e-State exam, and C2.2. R2-I1 improvement of the system of salaries in the state administration and public services, the system of Navy and COP
<b>Description</b>	<p>The aim of the measure is to ensure competent officials who will contribute to improving the efficiency of public administration and increasing efficiency, savings, and orientation of public administration to citizens. In order to achieve the target, the legislative framework has been amended and a 1T tool has been developed, a methodology and the necessary content for competency verification and capacity building. A centralised system of selection of civil servants will be introduced, which will be implemented on the basis of pre-defined employment plans based on workload analyses and the actual needs of the civil authorities to employ a certain profile of civil servants. In the recruitment process, online testing of candidates will be carried out, thus ensuring a transparent and more target selection of candidates. A standardised test and interview procedure will be carried out by professionals and the anonymity of candidates will be ensured throughout the procedure, until the interview, which will significantly contribute to transparency and enable the selection of the best candidates. The aim of the “e-State exam” investment was to improve the procedure and manner of conducting the state exam based on the development of a new e-State exam programme, in order to ensure transparent™ examination of all candidates on equal terms without the possibility of favouring them, which will increase citizens' trust in the work of the public service and contribute to the acquisition of general competencies for the work in the state service. Within the framework of this investment, an application for the state exam (ADI system) was developed through which the application for the state exam was enabled, application processing, exam organization, supervision of test implementation, examination taking and development of test materials. The investment also developed a system for e-learning — preparations for taking the state exam (EDI system) through which all officials obliged to pass the state exam were given timely preparation for taking the state exam. All procedures are fully digitalised. The new examination system was established on 1 November 2022, when the Ordinance on the taking of the State exam entered into force. This resulted in a key indicator of investment, e-State exam, according to which by the end of 2022 100% of officials of all public institutions obliged to pass the state exam are digitally taking the state exam based on the new model exam. Between 1 November 2022 and 1 January 2024, ADI and EDI system used 15,896 users with different roles in the systems and accessed/used systems 243,001 times at the same time,</p>

	<p>the planned NRRP reform will establish a fair, transparent, consistent, motivating and financially sustainable system of salaries in the state administration and public services and a standardized, digitalised, and user-oriented Croatian Navy.</p> <p>European Digital Rights and principles: digitalisation of the selection system, the state exam and the Croatian Navy will introduce solutions that put man at the centre of transformation in order to make these solutions transparent and easy to use.</p>
<b>Budget</b>	<p>EUR 1.926.656,3 (C2.2. R1-I1)</p> <p>EUR 733,312,6 (C2.2. R1-I2)</p> <p>EUR 6.792.678,1 (C2.2. R2-I1)</p>
<b>Duration</b>	9/2021. - 12/2024.
<b>8</b>	SDH 2032: Digitalisation of support processes and introduction of advanced digital solutions into the work of public law bodies - C2.2. R2-I2 introduction of hybrid workplace access model - smartworking
<b>Description</b>	<p>A necessary condition for the successful digitalisation of public services is the digitalisation of supporting business processes of public law bodies, in particular office business, and the availability of the necessary physical and digital infrastructure in public law bodies, which is often neglected, and is necessary to provide uniform quality of public services and reduce costs. In digitising the process, already developed services and services will be used, especially services available within the state information infrastructure (e-signature, e-stamp, e-delivery, etc.). The aim will be to simplify electronic communication and (digital) delivery of documents/forms among public institutions, including data exchange for groups of OIB (batch processing), which is currently not supported on the national bus.</p> <p>The hybrid workplace access project will change legislative solutions related to civil and labour relations for the introduction of a hybrid model of work in public administration and judiciary (Labour Act, Civil servants Act, Occupational Safety Act and bylaws), which will enable the smooth and continuous work of employees. In parallel with the amendments to the legislative framework, analytical and operational bases will be developed for the phased implementation of the model, which should cover part of the public administration employees by 2024. Preparatory activities were already undertaken due to the need of the Spring lockdown in 2020 and then the development of possible scenarios of the direction in which this model would develop started. As part of the investment, it is necessary to draw up an analysis of the situation and needs for teleworking and to draw up an analysis of the necessity of changes to the legislative framework relating to civil and labour relations for the introduction of a hybrid model of work in public administration and justice. In addition to developed substrates, equipment procurement and connection with systems, employees will be educated for this model of work and all technical conditions that include speed and quality of internet connection, secure data storage and collaboration on documents/objects with colleagues physically present in the buildings of public administration bodies will be ensured. On the basis of phase-developed substrates, equipment for a hybrid work model will be procured and invested in software, hardware and cloud solutions (using state information infrastructure wherever possible) so that individual employees can perform their regular work from any location as needed.</p>



	<p>European Digital Rights and principles: digitalisation of support processes and the introduction of new digital solutions, such as e-signatures, will implement solutions that put man at the centre of transformation in order to make these solutions transparent and easy to use. At the same time, the solutions will guarantee a high level of security for the information at the disposal of national authorities.</p>
<b>Budget</b>	<p>Project e-signature/stamp total project budget – EUR 2,981,737,47, and as far as the project has been spent to date – EUR 1,246,13</p>
<b>Duration</b>	<p><i>The measure will be implemented continuously until 2030.</i></p>
<b>9</b>	<p><i>NRRP: C2.5. R1-I1 improvement of the judicial case Management system (eSpis), C2.5. R1-I2 improvement of the land registry and cadastre information system, C2.5. R1-I3 Development of tools for public publication and search of court decisions, and C2.5. R1-I6 stable and resilient IT infrastructure of the judicial information system</i></p>
<b>Description</b>	<p>Further upgrading of the eSpis system (together with all modules, especially e-communication to enable electronic communication for all participants in court proceedings) and transition to a centralised hardware and software solution that will enable better and cheaper future upgrades and sustainability of development, as well as stability, operability, and security of the eSpis system. In particular, this means its integration into the State Cloud, which should merge the state information infrastructure and enable the sharing of information and communication technologies and uniform application solutions to streamline them.</p> <p>The improvement of the land registry and cadastre information system will increase the scope and improve the quality of land registry and cadastre data in BZP from 3.86% to 60%, and the implementation of a software module (virtual assistant) based on artificial intelligence will increase the efficiency of work in land registry procedures and provide citizens and business entities with user support and incentives for the Regulation of land registry and cadastral status. The Regulation of land registers and THE BZP affects greater legal certainty and legal transactions in real estate, favours investment promotion, economic and social recovery and development, enables more efficient control of the implementation of public obligations, ensures a fuller representation of state assets and assets owned by local and regional (regional) self-government units and its putting into operation, and ensures easier access to EU funds, and in addition to direct impact on the efficiency of procedures in land registry procedures, it will also affect the successful monitoring and verification of assets and thus contribute to better implementation of anti-corruption policies.</p> <p>At the same time, a system will be established for the publication of all court decisions with prior automatic anonymisation using special software and publication on a single publicly accessible portal with elaborated search possibilities, while respecting the rules on personal data protection.</p> <p>Further upgrading and consolidation of existing applications and further development of the infrastructure of information systems in the judiciary will also be encouraged, in order to ensure full implementation of action plans at national and EU level. It will allow for the safe and continuous operation of the entire communication system, with a higher degree of interoperability and lower</p>

	<p>costs for judicial authorities. Applications will be more accessible, more stable, with secure data exchange with all bodies using CDU infrastructure.</p> <p>European Digital Rights and principles: digitising the justice, cadastre and land registry systems will facilitate access to these services and communication with competent authorities. Therefore, solutions that put man at the heart of transformation will be introduced to make these solutions transparent and easy to use for all users, from civil servants, employees to citizens. At the same time, implemented solutions will guarantee a high level of security for users involved in the processes to the public bodies concerned.</p>
<b>Budget</b>	<p>EUR 2.910.132,93 (C2.5. R1-I1)  EUR 3.110.888,4 (C2.5. R1-I2)  EUR 225,646,1 (C2.5. R1-I3)  16.027.870,9 EUR (C2.5 R1-I6)</p>
<b>Duration</b>	6/2021.-6/2026.
<b>10</b>	<i>NRPP: C2.6. R1-I2 Digitalisation of the ethical system of civil servants, and C2.6. R1-I3 improvement of the existing system of property cards of civil servants</i>
<b>Description</b>	<p>The work of the entire infrastructure for ethics in the civil service will be modernised through the facilitation of the harmonization of the work of the Ethics Commissioner, the monitoring of ethical Commission practices, the keeping of electronic records in a contemporary manner, and the monitoring of the situation and resolution of complaints filed for unethical behaviour of civil servants.</p> <p>At the same time, by further investing and upgrading the existing system, it is planned to further strengthen the technical capacities of the Commission for decision-making on conflicts of interest in the context of speeding up and facilitating procedures for the submission, processing and verification of property cards with the aim of improving mechanisms for managing conflicts of interest of state officials, and improving the application of the Commission in the described manner will also create preconditions for improving the application of judicial officials.</p> <p>European Digital Rights and principles: digitalisation of the ethical system and improvement of the civil servants' property card system will put human solutions at the heart of transformation so that these solutions are transparent and easy to use for civil servants, but also for other stakeholders to whom they have access to this information.</p>
<b>Budget</b>	<p>EUR 318.559,2 (C2.6. R1-I2)  EUR 58.405,2 (C2.6. R1-I3)</p>
<b>Duration</b>	2/2022.-6/2026.
<b>11</b>	<i>NRPP: C2.3. R3-I16 Digitisation of processes in sport and recreation at local and regional level</i>
<b>Description</b>	The aim of this investment is to establish new application modules of the information system in sports (ISS) primarily in the form of providing e-services to stakeholders in sports and health-oriented physical exercise at local and regional level, which contributes to:

	<ul style="list-style-type: none"> <li>improving the efficiency of the operation of sports clubs by providing direct access to the basic registers and records of the information system in sport, with the possibility of entering data</li> <li>simplification and transparency of procedures for financing public needs in sport of national, local and regional (regional) self-government in digitalization of the process</li> <li>monitoring and managing the development of sport and health-oriented physical exercise, by simplifying and improving the efficiency of sport data collection and health-oriented physical exercise.</li> </ul> <p>European digital rights and principles: digitising the process in sport and recreation locally; and at the regional level, people will be put at the centre, that is, processes will be digitised and simplified, which will make these processes more transparent and simpler.</p>
<b>Budget</b>	NRRP: EUR 1,492,946
<b>Duration</b>	1/2022. – 6/2026.
<b>12</b>	NRRP: C2.3. R3-I9 establishment of a new platform for electronic public Procurement Classifieds, C2.3. R3-I13 Digital transformation of the tax Administration, C2.3. R3-I14 implementation of a non-cash payment system in the economy via e-accounts with integrated e-archives and active tax bookkeeping, and C2.3. R3-I17 establishment of a register of population, families and households
<b>Description</b>	<p>A platform for electronic public Procurement Classifieds will be established, which will reduce the workload of staff engaged in public procurement by reengineering and digitising business processes that will support the work of civil servants while providing administrative relief. Digitalisation and automation of the process will facilitate the business environment of economic operators participating in public procurement procedures, which is the goal of the Government's programme.</p> <p>At the same time, the information system and ICT infrastructure of the tax Administration are being modernised in order to ultimately achieve a more efficient business of the tax Administration, i.e. “paperless” business. Furthermore, the aim is also to further develop a portfolio of quality services intended for taxpayers and employees of the tax administration, based on a modern technological platform that enables the automation of tax business processes with optimization of operating costs for both the tax administration and taxpayers. The establishment of a modern information system of the tax Administration will facilitate the operations of users, i.e. taxpayers, ensure greater efficiency of tax administration officials in tax collection and positively influence the general satisfaction of taxpayers and create a positive image of the tax Administration in the public.</p> <p>The results of the investment implementation of the non-cash payment system through e-accounts with integrated e-archives and advanced online accounting in the VAT system include:</p> <ol style="list-style-type: none"> <li>1. establishment of an information system for reporting cashless invoices to the tax Administration, which are currently issued according to the state administration bodies (B2G segment),</li> <li>2. implementation of a cashless payment system through an electronic business to business account (B2B segment) with integrated e-archive and advanced online accounting in the VAT system, and</li> <li>3. establishment of a free e-account application for small taxpayers.</li> </ol> <p>The investment is expected to bring a number of benefits such as a facilitated tax return, a reduction in the number of required forms (tax bookkeeping), the accuracy of tax compliance and to a significant extent their compliance with the data from the e-account platform, transparent operations and the possibility of insight into payment deadlines and compliance with payment deadlines, insight into the</p>

	<p>current business of a particular taxpayer, current credit checks, contribution to environmental protection using digital instead of “paper” account archives, reducing the number of copies of invoices and archiving them through Internet intermediaries, the possibility to send an Annex to the invoice and relieve the burden of paperwork, improving interoperability between actors involved in the collection process, the possibility to monitor and link invoices and prevent tax fraud related to VAT refunds, business operators are supported for more efficient and competitive business in the national and global context.</p> <p>Finally, the target of the establishment of the Register of population, families, and households (the current Central Register of population) is to enable data on population, families and households with related data on receipts and assets in a single place in a comparable temporal and spatial dimension (the Register OF JUICE). The project will establish the JUICE Registry with the aim that the availability of data can very precisely determine persons or families or households depending on the level of income and/or property census. Namely, by linking data on the population, family and household with data on incomes and non-taxable receipts under the jurisdiction of the tax Administration and with data on assets from official records of competent authorities, multiple purposes will be achieved from reliable information on the population, to enabling the review of income and system of social benefits or entitlements, and fulfilment of obligations depending on the income and/or property census of the individual or family or household.</p> <p>The establishment of the JUICE Registry on sustainable digital technology will reduce the administrative burden on citizens (users) in exercising their rights and fulfilling their obligations, and the system will ensure the necessary amounts of granting rights to individuals, families, or households precisely in need and assess the obligations of individuals, families or households in fulfilling their prescribed obligations. By linking data with data on income and assets of the population, family or household, tax procedures will be able to assess the reality of reporting all tax liabilities very effectively for all citizens of the Republic of Croatia. At the same time, following the model of digitally developed EU Member States, preconditions will be created for the implementation of the population census through the JUICE register. Apart from these prominent examples, the establishment of the JUICE register will enable increased efficiency of work and other public legal bodies in which these rights are exercised today by submitting an application and proving the fulfilment of conditions by collecting various certificates issued by various institutions such as for the exercise of social benefits and rights from all budgets, free legal aid, child allowance, rights of Croatian veterans, rights of students and parents when enrolling children in a school or kindergarten, etc. It is about exercising the right in front of all public law bodies while reducing the administrative burden on citizens in all procedures that depend on the income and/or property census of the individual. family or household</p> <p>European Digital Rights and principles: the establishment of an electronic bulletin, the introduction of cashless payments via e-accounts and the digital transformation of the tax Administration will put human solutions at the heart of transformation to make these solutions transparent and user-friendly. For example, citizens will be much easier to access better quality tax administration services, fill out tax returns, check bonuses, etc. At the same time, special attention will be paid to the protection of personal data and the safety of citizens when using these services, and care will be taken that implemented solutions have minimally harmful effects on the environment.</p>
<b>Budget</b>	<p>EUR 1.529.416.6 (C2.3. R3-I9)  EUR 56.577.532,7 (C2.3. R3-I13)  EUR 14.193.696.9 (C2.3. R3-I14)</p>

	EUR 12.800.000,0 (C2.3. R3-I17)
<b>Duration</b>	4/2021.-6/2026.
<b>13</b>	NRRP: C2.3. R3-I17 improvement of the system of physical planning, construction and state assets through digitalization
<b>Description</b>	<p>Physical planning provides conditions for the use, protection, and management of the territory of Croatia as a particularly valuable and limited national asset, thus fulfilling the preconditions for social and economic development, environmental and nature protection, building excellence and rational use of natural and cultural assets.</p> <p>The aim of this investment is to improve the spatial planning system, simplify the entire system of construction and management of state assets, by establishing an adequate and complete information system that will enable better communication and cooperation between investors and public administration, better overview of the entire investment process by all its participants and better inter-departmental cooperation between competent institutions. This investment is intended to contribute to stimulating investments and improving business Regulation and reducing administrative burden through optimization of electronic construction site management and construction control by all participants in construction and building inspection as well as labour inspection. The data in the system will be available to state and public administration bodies directly through the central interoperability system.</p> <p>European Digital Rights and principles: digitalisation of the system of physical planning, construction and state assets will introduce human solutions at the centre of transformation in order to make these solutions transparent and easy to use. Moreover, citizens will be more easily able to obtain a service in this domain or to communicate with the relevant authorities. At the same time, implementation of solutions with minimal environmental impact will be encouraged.</p>
<b>Budget</b>	NRRP: EUR 23,885,763,8
<b>Duration</b>	6/2021.-2/2026.

**Contribution to the green transition** - see the targets set out in [Decision of establishing the Digital Decade Policy Programme 2030 Article 3 \(1\), letters \(h\) and \(j\)](#):

<b>1</b>	<i>NRRP C1.2. R1-I1 Revitalisation, construction and digitalisation of the energy system and accompanying infrastructure for decarbonisation of the energy sector</i>
<b>Description</b>	<p>The energy sector also expects digitalisation, especially of the transmission network, as this will ensure better balancing of the electricity transmission system from the generation point to the consumption point.</p> <p>European Digital Rights and principles: digitalisation of the energy system will increase security in energy supply and upgrade the accompanying infrastructure, which will reduce its negative environmental impact.</p>
<b>Budget</b>	388 tis. EUR

<b>Duratio n</b>	1/2021.-6/2026.
<b>2</b>	<p><i>NRRP:</i></p> <p><i>C1.3. R1-I1 public sewerage Development Programme</i></p> <p><i>C1.3. R1-I2 Programme for the Development of public water supply</i></p> <p><i>C1.3. R2-I1 waste reduction scheme</i></p>
<b>Descript ion</b>	<p>In the field of water management, public sewerage development programme (NRRP C1.3. R1-I1) and the Programme for the Development of public water supply (NRRP C1.3. R1-I2) contribute to the 40% digital transition which will be achieved through the implementation of water utility projects which also include digitisation measures in terms of the introduction of supervisory management systems, the establishment of geographical information systems (GIS), the establishment of accurate records of data through the purchase of meters on water works, loss management, etc. In the waste disposal reduction program, the contribution to the digital transition is also 40% achieved by informatization of the system of separately collected municipal waste and digital monitoring of its flows. The waste Management Act (Official Gazette, No. 84/21 and 142/23 - Decision of the Constitutional Court of the Republic of Croatia) improves the digitalisation of waste management areas in the Republic of Croatia. The waste management information system is used to monitor the implementation and management of the waste management system and is an integral part of the environmental information system. It will contain data on waste, by-products, waste elimination, obliged entities in the waste management system, extended producer responsibility, waste disposal sites, implementation of economic waste management instruments, waste prevention activities carried out, implementation of the required waste management targets, collection rates, recycling, disposal and other data relevant to waste management. The waste management information system shall include applications: e-ONTO for waste flow monitoring, environmental pollution Register, for the operation of the Register of waste Management activities, Cross-border waste traffic, records of sites of waste discarded, reports on the operation of public service providers, for landfill operators and for the monitoring of waste prevention, reuse and information projects and activities.</p> <p>European Digital Rights and principles: digitalisation of public water supply, sewerage and landfill systems will improve the management of the systems concerned by reducing losses and improving waste separation. The negative environmental impact of these systems will be significantly reduced.</p>
<b>Budget</b>	<p>401 tis. EUR (C1.3. R1-I1)</p> <p>137,9 million EUR(C1.3. R1-I2)</p> <p>146 million EUR (C1.3. R2-I1)</p>
<b>Duratio n</b>	<p>2/2020.-6/2026. (C1.3. R1-I1)</p> <p>2/2020. 6/2026. (C1.3. R1-I2)</p>

3	<p><i>NRRP:</i></p> <p><i>C1.4. R1-I1 electronic toll system</i></p> <p><i>C1.4. R1-I3 National electronic data storage and Exchange system for road Transport (NSCP)</i></p> <p><i>C1.4. R1-I4 reporting management system for road passenger and freight transport</i></p> <p><i>C1.4. R2-I6 application of green technologies in rail passenger transport</i></p> <p><i>C1.4. R2-I7 upgrading of it and sales systems and modernisation of trains with it systems</i></p>
<b>Description</b>	<p>The development of electric mobility, as well as the introduction of a new electronic toll system, develops systems with digital components and, for example, through the collection of data on transport flows, directly contributes to the development of intelligent transport systems, improving traffic and mobility management, which has positive effects on greenhouse gas emissions and other pollutant emissions and contributes to the green transition. Furthermore, the railway sector will encourage the use of green technologies and upgrade the IT and sales systems in rail transport.</p> <p>European Digital Rights and principles: digitalisation and improvement of road and rail transport systems will contribute to the development of intelligent transport systems, improving traffic and mobility management, with positive environmental impacts.</p>
<b>Budget</b>	<p>65,6 million EUR(C1.4. R1-I1)</p> <p>7,7 million EUR(C1.4. R1-I3)</p> <p>1.9 million EUR(C1.4. R1-I4)</p> <p>13.3 million EUR (C1.4. R2-I6)</p> <p>6,4 million EUR (C1.4. R2-I7)</p>
<b>Duration</b>	<p>6/2022.-12/2025. (C1.4. R1-I1)</p> <p>3/2021.-5/2026. (C1.4. R1-I3)</p> <p>3/2021.-12/2024. (C1.4. R1-I4)</p> <p>6/2021.-12/2024. (C1.4. R2-I6)</p> <p>1/2022.-12/2024. (C1.4. R2-I7)</p>

## 5 COOPERATION AT EU LEVEL

### 5.1 Multi-State projects

#### 1) a. Multi-State projects included in the list of areas of action for which a Member State commits or plans to commit in the future

The Multistate projects to which a Member State commits or plans to commit in the future are shown below. At the time of drafting this document, several multi-state projects are only in the stage of preparation and detailed elaboration. Looking at EDICS as a new product of the digital decade, which are only in the establishment phase, and also due to the dynamism of the establishment process itself, it is not possible to provide more specific data at this time. However, bearing in mind that Roadmap is a living document which is expected to be updated regularly, our expectations are that data on the establishment of 8 EDICS in which Croatia participates will be updated and updated as soon as they are known. All currently known information is presented below, while undefined elements will be provided during the revision of this document and after further elaboration by relevant stakeholders.

#### EUCAIM EDIC

**Member States:** Austria, Finland, France, Italy, the Netherlands, Poland, Spain, Sweden and Croatia.

#### **Description of the project:**

Cancer image Europe (EUCAIM) platform is a pan-European FEARED digital federated infrastructure, dedentified cancer medical images from real world data and high-quality tools. The infrastructure was designed as an experimental platform to facilitate and encourage the development and comparison of artificial intelligence-based cancer management tools to precision medicine in cancer diagnosis and treatment. To enable this, EUCAIM will provide a comprehensive dashboard for data discovery, pooled search, metadata collection, tagging and distributed processing, including pooled privacy-preserving learning. EUCAIM will also build a centre containing Atlas of cancer Images as part of its infrastructure, which will be fully interoperable with other components of the European Health data space, while preserving the sovereignty of service providers' data.

EUCAIM will focus on collaboration with clinics, researchers, and innovators, providing the means to build reproducible clinical decision-making systems that support diagnosis, treatment and predictive medicine. This infrastructure will benefit citizens through improved healthcare procedures and stimulate the European market by innovating new tools and services.

EUCAIM will also shape the legal bases for such action at pan-European level, adapting to the specificities of the different countries in clinical data management.

To do so, EUCAIM will implement a Federation of service providers in accordance with this legal basis, defining common data models, ontologies, quality standards, FAIR principles and deidentification procedures. As a European cross-border health data repository, EUCAIM is aligned with European infrastructures for the secondary use of health data, which will be promoted by the future Regulation on the space of European health data.

The infrastructure is created through the EUCAIM project. This four-year initiative started on 1 January 2023, co-financed by the European Union under the Digital Europe Programme, DIGITAL-2022-CLOUD-AI-02-CANCER-IMAGE “Federation European infrastructure for cancer image data”.

In particular, THE EUCAIM project follows 11 specific targets (SO):

1. Sets up the ethical, legal and security framework of THE EUCAIM, which will define access and data transfer contracts, deidentification and anonymisation procedures and the legal boundaries of the project.



2. Establish a Coordination body to host central hub services and define a legal model, rules for participation (for data and service providers and consumers), recognition models and operating procedures.
3. Integrates and deploys central services to provide a platform for data discovery, querying and access to deidentified high-quality data at federal nodes.
4. The following approach is to data protection and privacy by design and by default (as set out in Article 25 of the GDPR) for the definition of authentication and authorisation infrastructure (AAI) and for the implementation of privacy-preserving technologies necessary to fulfil security agreements.
5. Define common data models, interoperability guidelines, best practices, FAIR metrics, tools and standards for integrating aggregated data and metadata.
6. Integrates a set of key cancer image data providers coming from existing repositories, hospital coalitions, research infrastructures, networks and other data providers into the consortium.
7. Integrate distributed processing environments, including appropriate processing tools, pooled learning, and computer intensive frameworks with impeccable access to data resources to deploy on-demand processing through research users.
8. Monitor the provision of data, access to data, data processing, users, access to data and other key metrics of the repository for reporting, assessing, and assessing the functionality of the platform.
9. Define and implement THE operative bodies of EUCAIM, which will supervise access, scientific guidance, technical support, training, and monitoring of THE ECAIM infrastructure.
10. Create an environment to support the network for cooperation on existing research infrastructures such as EATRIS, ELIXIR, BBMRI and Euro-Biolmaging.
11. Defines the sustainability plan and implement the necessary structures for the operation of the repository as research infrastructure upon completion of the project.

**Mechanism of implementation of multi-state projects:** EDIC will be a legal entity that integrates, manages and manages a portfolio of technical infrastructures consisting of infrastructures currently under development, e.g. Agrifood-TEF (testing and experimentation facilities) and Agrifood data space; infrastructure provided by any of its members and appropriate to its targets; infrastructures designed and implemented by EDIC itself through its own initiatives. In doing so, EDIC will connect with any relevant national or European initiative.

**Connection to the EU's digital and/or general targets:** EUCAIM will contribute to European policies and strategies to promote the secondary use of health data for research and innovation activities, focusing on cancer patients. It will take important steps towards the European Health data area (EHDS) as it is in line with the European beating cancer Plan. EUCAIM will deliver a Union-wide data platform accessible to all Member States, with advanced solutions, enabling health innovation and improving efficiency by sharing resources and thereby optimising the use of financial resources.

**Expected impact:** the primary result of EUCAIM is the implementation of robust infrastructure that will enable secondary use of cancer images and related health data. This outcome will show technologies, operational procedures and legal frameworks that are repeatable, effective and cost-effective to enable cross-border re-use of health data in research and innovation projects. Therefore, EUCAIM will enable the technologies and legal/operational framework validated in this project to be implemented on a larger scale in scenarios such as HealthData @EU.

**Budget:** not defined

## *AGRI food EDIC*

**Member States:** Austria, Belgium (Flanders), Cyprus, Finland, France, Italy the Netherlands, Poland, Spain, Slovenia, Sweden and Croatia.

### **Description of the project:**

The Croatian consortium expressed interest in participating in EDIC, focusing on all aspects of data collection, process management and data interpretation in crop and animal breeding, integration of geospatial data and improved analytics for providing innovative solutions, creation of decision support system (DSS) and models for optimization of agricultural production and mitigation and adaptation to climate change. The Consortium plans to contribute to EDIC also by integrating research results and experience in the sustainability of food production and quality in the digital quality and traceability forecasting system, as other research results to support the creation and growth of new businesses. Furthermore, the activities envisaged the transfer of digital technologies to production, the strengthening of the role of agronomists and their competences in the digitisation of rural areas, the definition of common standards and requirements for interoperability and data exchange, the development of models for the standardisation of analytical and predictive data from agricultural production, the in-depth technological method for monitoring and describing biodiversity loss and for identifying and predicting agricultural pests, diseases and weeds. The consortium stands ready to provide education, lifelong learning and competences building in the field of the digitalisation of agriculture.

Furthermore, the consortium is interested in supporting Agrifood EDIC to contribute to the leading global platform for digital agriculture, integration and portfolio management of technical infrastructures consisting of infrastructures currently under development, e.g. Agriculture-TEF and Agrifood data space, by participating in the building of open government data, by providing transfer of knowledge and experience of industry and mentoring, and by providing talent, human resources and capital, The Consortium will enable the provision of quality study programmes and lifelong learning programmes focusing on digital solutions and sustainability of the agricultural sector. Cooperation will be achieved through the transfer of scientific results and the provision of experts/newly trained staff in the field of information technology applications for the sustainable management of the agricultural ecosystem and food production.

In addition to the above, the consortium will contribute to Agrifood EDIC in R & D focusing on: I) intelligent algorithms for data processing, modelling, forecasting, monitoring and decision support, including artificial intelligence, II) advanced earth and air robotics in agriculture, including machine vision and multi-spectral crop observation, III) innovative sensors for capturing different biological and physical phenomena that allow new boundaries in crop monitoring, IV) the concept of digitalisation of the sector via the Internet of things (IoT) with wireless communication networks and protocols for maintaining a large number of geographically distributed sensors, big data and digital archives, based on open data strategies, V) sector resilience to climate change by accurately predicting extreme weather conditions through multimodal time observation, including appropriate monitoring and decision support systems, VI) intelligent algorithms in food supply chain optimisation, delivery logistics, perishable goods and food waste reduction, VII) deep-tech entrepreneurial ecosystem and related business models in food and agriculture, and VIII) creating an up-to-date and exchangeable database on agricultural land. Furthermore, the consortium will offer to provide telecommunication and ICT infrastructure (e.g. data centres) as well as to integrate and implement IoT-based sensors with application in the agricultural sector (production, planning, monitoring, etc.).

As part of its statements, the consortium is prepared to offer experts who will realise the goals mentioned.

**Mechanism of implementation of multi-state projects:** EDIC will be a legal entity that integrates, manages and manages a portfolio of technical infrastructures consisting of infrastructures currently under development, e.g. Agrifood-TEF (testing and experimentation facilities) and Agrifood data space;

infrastructure provided by any of its members and appropriate to its targets; infrastructures designed and implemented by EDIC itself through its own initiatives. In doing so, EDIC will connect with any relevant national or European initiative.

**Connection to the EU's digital and/or general targets:** EDIC will support the creation and growth of start-ups, making available to its customers access to technology and knowledge, access to finance, mentors and trainers, etc. In doing so, it will liaise with and make use of relevant national and European ecosystem operators (e.g. EIT Digital, EIT food, SmartAgriHubs ...), investors, etc.

**Expected impact:** not defined

**Budget:** not defined

### *1 + million genome*

**Member States:** Luxembourg, Estonia, Spain, Czech Republic, Belgium, Bulgaria, Denmark and Croatia.

#### **Description of the project:**

Building on the 1 + MG initiative, the genomic data infrastructure (GDI) project was launched as a multi-country project in November 2022 to develop, implement and manage sustainable data access infrastructures within each participating country, including the legal frameworks, operational procedures, and ethical principles necessary to foster and maintain citizens' trust in cross-border access to highly sensitive personal data. The new €40 million GDI project, coordinated by ELIXIR, is jointly funded by the European Commission under the Digital Europe Programme and through co-financing by participating Member States. After the completion of the project, sustainability is envisaged to be ensured by the members.

The GDI project brings together national agencies, research organisations and technology providers to start implementing digital infrastructure to support the targets of the 1 + MG initiative. The EDIC genome will be based on sustainable and secure cross-border connectivity and access to a multitude of genomic and related phenotypic, clinical, and other datasets across Europe based on the progress made in the context of 1 + MG. In its initial phase, it aims to achieve a commitment (consensus on legal implementation and business model for operations) of a critical number of countries (i.e. at least 5) to continue and ensure the sustainability of infrastructure beyond the current efforts of the GDI project.

The aim is to enable AUTHORISED data users, such as clinics, researchers, and innovators, to improve our understanding of genomics for more precise and faster clinical decision-making, diagnostics, treatment, and predictive medicine, and for improved public health measures that will benefit citizens, health systems and the overall economy. The technical infrastructure will be combined with sustainable governance mechanisms that will ensure easy, cross-border access to key datasets in the targeted area, in line with European data management rules and address the discovery of available data and access to providers and services. The EDIC genome will interact closely with THE development of THE EHDS to seek the integration of structures. It therefore focuses from the outset on the development of compatible infrastructures. The EDIC genome will be continuously developed and supported by advanced information technology (IT) tools and capabilities, e.g. AI, High performance computing (HPC), cloud, blockchain and trust solutions, where relevant to enable secure access and distributed analysis of complex datasets.

**Budget:** the Republic of Croatia, as a participant in the GDI project (implemented via the Rudjer Boskovic Institute), can co-finance with EUR 101,000.00 over 4 years. IRB was nominated by the Ministry of Health for the realization of the GDI project and Miz therefore bears some responsibility for co-financing the GDI project. National co-financing of 50% is mandatory. (RC budget for GDI is EUR 202,000.00 in total, i.e. EUR 101,000.00 is from EU funds).

**Connection to the EU's digital and/or general targets:** On 10 April 2018, during Digital day 2, the declaration: "According to the reach of at least 1 million sequenced genomes in the EU by 2022" was

signed by 13 EU Member States (including the Republic of Croatia), and the initiative '1 + million genomes' (1 + MG) was formed as a multi-state project. The 1 + MG initiative aims to ensure safe access to genomics and relevant clinical data across Europe for better research, personalised healthcare and health policy making. The ultimate goal of the 1 + MG initiative is to support common health policy targets; in particular to improve health for citizens, the future sustainability of health systems and to foster large-scale biomedical and clinical research and development based on data in Europe.

**Expected impact:** building a 1 + MG cohort of at least one million European citizens identified by the genome will provide a solid basis for the development of personalised medicine and health approaches. Researchers and clinicians will be able to analyse and compare human genetic and clinical data. This will help them to identify diseases early, predict disease development, and decide the best ways to improve health. Improvements in personalised medicine and health will make national health systems more efficient and cost-effective. New insights into how genes affect disease sensitivity or a person's response to the drug will stimulate innovation and new products across the healthcare industry.

**Budget:** not defined

### *EDIC for language technologies – ALT-EDIC*

**Member States** shall: Bulgaria, Czech Republic, Germany, Denmark, Spain, Greece, Finland, France, Croatia, Hungary, Ireland, Italy, Latvia, Slovakia, Malta, Poland, Portugal, Romania, Sweden, Slovenia and Croatia.

**Project description:** the main target of the project is to preserve linguistic and cultural diversity in Europe, as well as to promote technological excellence and leadership. Other challenges include bias management, cost-efficient IA, explainability or reuse of the model.

Priority 1: Technological leadership and strategic autonomy - develop and implement the European Union's own language models and language technologies, thereby ensuring better control over the use and sharing of EU data and reducing its technological dependence from other global stakeholders. Build a robust infrastructure using data collection, language models and the relevant ecosystem. Priority 2: Respect for European rules and values - ensure the re-use of European data within the European Union and in accordance with its values: compliance with EU regulations and values such as GDPR, PSI Directive, data Act or AI Act, but also promotion of ethical and fair development and implementation of It.

Priority 3: Cooperation - ensure cooperation between the EC, Member States and private and public sector stakeholders.

Priority 4: raising awareness - promote better understanding and adoption of LT and its challenges in the EU for industry and European citizens.

Priority 5: Linguistic diversity – encourage the development of technologies for all European national and regional languages with a priority given to less resource EEA languages, ensuring language preservation and offering all EEA citizens the technologies available in their languages, in line with the EU's vision of multilingualism.

**Multi-state project implementation mechanism:** Under THE EDIC, the existing ecosystem and partnerships will benefit from the legal personality recognised as an international organisation by all EU Member States. It will help establish stakeholder relations and expand ecosystems.

**Link with the EU's digital and/or general targets:** ALT-EDIC'S task is to implement the Multi-State Alliance for language technologies project in the European Union – ALTE. In this context, linguistic coverage will focus on the official languages of all EU and EEA Member States and can be extended to other socially and economically relevant languages to support the European Union's efforts on equality, inclusion, and accessibility, as well as its competitiveness in the international market and commercial growth.

**Expected impact:** the aim of this EDIC is to reduce language barriers between Member States, improve access to public services and information, and further contribute to the achievement of an inclusive society.

**Budget:** minimum €58 420.00 in cash and €306 285.60 in-kind

### *Innovative massive public Administration interconnected transformation services (IMPACT) EDIC*

**Member States:** Greece, Lithuania, Poland, Finland, Hungary and Croatia

#### **Description of the project:**

IMPACT-EDIC will be AN instrument for broader implementation of the next generation of advanced public services across Europe, using advanced information and communication technologies and open principles and standards. Its mission will be achieved by linking Member States' projects, initiatives and actions, fostering European innovation ecosystems, using existing EU initiatives and infrastructures and facilitating synergies between the actors of the quadruple helix. EDIC aims to work closely with the EDIH network and EU initiatives GovTech and other related initiatives provided for in the proposal for an interoperability Europe Act. New projects will also be launched for the 2030 Agenda for Strategic Decade. (DDPP 2030) reusing the once-only principle and the European electronic identification framework.

EDIC's tasks will include setting up, operating, and improving infrastructure for the provision of cross-border public services at EU level, providing services to citizens and businesses, and facilitating the implementation of EU policies. In this respect, the existing e-delivery solution will be improved to establish a secure reliable network between public administrations and data-sharing companies.

It will also act as a catalyst in the digital transformation of business by facilitating access to real-time business data available and usable for innovation and growth in an automatic, consent-based, and secure manner. This action will contribute to the goal of the digital decade for 75% of businesses to use cloud computing services, artificial intelligence, and big data. In this respect, the adoption of public procurement procedures for innovation and pre-commercial procurement methods will involve private and public partners in achieving the targets of the Digital decade Policy Agenda.

**Multi-state project implementation mechanism:** Under THE EDIC, the existing ecosystem and partnerships will benefit from the legal personality recognised as an international organisation by all EU Member States. It will help establish stakeholder relations and expand ecosystems. The new legal entity will be instrumental in implementing such a sustainable business model, taking into account technical, financial, operational and legal aspects to ensure the long-term development, growth and scalability of modern public services and their application.

**Connection to the EU's digital and/or general targets:** it will contribute to the targets of the digital decade to deliver 100% of key public services online and 100% of citizens to access digital identification and medical documentation online.

**Expected impact:** not defined

**Budget:** not defined

### *European blockchain services Infrastructure Consortium EBSIC-EDIC*

**Member States:** Bulgaria, Lithuania, Luxembourg, Portugal, Slovenia, Sweden, Greece, Italy, Germany, Spain, Poland, Denmark, Finland, Cyprus, Romania, and Croatia.

#### **Description of the project:**

EBSIC-EDIC will be set up to establish, operate and improve cross-border public service infrastructure across the EU, serving citizens and businesses and facilitating the implementation of EU policies. One will allow for the cross-border exchange of trusted and secure credentials or other tokens (such as NFT)

between citizens, businesses and public authorities. It will enhance cross-border cooperation between public authorities and facilitate interoperability with other digital infrastructures, including smart contracts and decentralised applications. It should contribute to creating better conditions for innovation in Europe, while respecting EU values and rules.

**Multi-state project implementation mechanism:** The European blockchain Service infrastructure (EBSI) implementation Strategy is based on the work of the European blockchain Partnership (EBP) and the European Commission (EC). THE EBSI node network is ready to launch applications and can speed up the adoption of AN EBSI verifiable credential model in various sectors such as health, mobility, energy, etc. Large-scale development has started since the second quarter of 2023 and will result in more than 350 organisations from over 30 countries becoming part of the EBSI ecosystem. EBSIC-EDIC will continue to implement the planned EBP activities and a transition phase of around 12 months will ensure that the work done by the European Commission is integrated and upgraded.

**Connection to the EU's digital and/or general targets:** The targets of this EDIC are to coordinate the development and implementation of THE EBSI environment and networks, including the development of a strategy to ensure the operational availability, security, and sustainability of THE EBSI. Furthermore, support the development and operational implementation of joint use cases identified as priorities by the General Assembly and provide EBSI capacities, support services and oversight activities to ensure compliance with agreed priorities and conditions.

**Expected impact:** not defined

**Budget:** €100,000.00

## Local Digital twins

**Member States:** Estonia, Slovenia, Spain, France, Portugal, Latvia, Luxembourg and Croatia.

### Description of the project:

The task of LDT CitiVERSE EDIC is to implement networked local digital twins according to CitiVERSE in the multi-country project area of the European common data infrastructure and services. In line with this main task, LDT CitiVERSE EDIC will develop joint action by EU Member States to implement a strong digital ecosystem around common infrastructure components for data, digital services and related elements for smart cloud communities.

LDT CitiVERSE EDIC will carry out the following activities, including interconnected tasks:

1. Creation, development and maintenance of a common repository of LDT tools supported by common open standards.
2. Manage and manage national and EU infrastructure after its development and delivery to EDIC. The EDIC infrastructure will come from EU procurement under the Digital European Programme (DEP), such as the EU's LDT toolbox laying the foundations of CitiVERSE.
3. Encourage the technical interoperability of data and services to combat EU digital fragmentation (avoiding supplier lock-downs) by fostering common agreements and standards through open standards; the implementation of targeted projects awarded by the European Commission under the Digital Europe Programme; joint development of joint initiatives and joint tenders for economies of scale and the bringing together of EU technology globally.
4. Identify and aggregate the common assets of the EDIC members which, through joint delivery and service, can create greater value for IPR holders.
5. Implement financial autonomy from targeted certification measures; digital accreditation services; audits and developments based on partners; joint framework procurement; joint development in the framework of the procurement of innovative solutions; external management and delivery of data and services; neutral testing and validation services.

**Connection to the EU's digital and/or general targets:** this project contributes to the overall digital target of digitalising public services, especially for smaller local and regional (regional) self-government units. The project fosters the diffusion and use of best digital solutions in areas of public interest and the private sector and contributes to a sustainable digital transformation of society, including ethically.

**Expected impact:** the potential of local digital twins lies in their ability to combine data from different sources and domains. It deals with data collected in real time (via sensor infrastructure or mobile networks), enabling the creation of qualified short-term decisions (e.g. traffic management or energy management). Longer time series and more advanced analytics combined with machine learning and HPC also allow for an impact on long-term decisions through policy simulations and predictions (e.g. climate change mitigation decisions). As regards climate sustainability, local digital twins allow significantly better and more detailed simulations of the impact of new buildings or the removal of green cover on quality of life in certain urban areas, promoting nature-based solutions and interdisciplinary cooperation in line with the new European Bauhaus targets.

**Budget:** €15,000.00

### EDIC for the deployment of the Cybersecurity skills Academy

**Member States:** Cyprus, Portugal, Italy, Austria, Slovenia, France, Netherlands, Greece and Croatia

Details of EDIC are still under development.

## 5.2 Facilitating factors at EU level

Measures that could be supported by the EU or best implemented in cooperation with other Member States have not been identified during the drafting of this document. If such measures are to be identified in the future, they will be indicated during the revision of this document.

However. The Republic of Croatia is conducting intensive consultations with EU Member States and the European Commission on the access to the “Digital for Development Hub” platform, within which it is planned to engage following an analysis of possible projects and initiatives, which are currently being conducted with various digital stakeholders from the public and private sectors. With the possibility of considering engagement in all regions where Hub is active, particular attention is intended to be given to digital development projects and initiatives in the Western Balkans and Eastern Partnership countries.

“Digital for Development Hub” is a strategic platform set up by the EU and Member States with the aim of strengthening multi-stakeholder partnerships, establishing a digital dialogue and fostering investment for the advancement of the anthropocentric digital transformation in partner regions (Asia, Africa, Latin America, Pacific, EU Neighbourhood) and is a key instrument for implementing the digital pillar of the EU Global Gateway Strategy. So far, 15 Member States have joined this team Europe initiative (Belgium, Germany, Estonia, Spain, France, Italy, Lithuania, Latvia, Luxembourg, the Netherlands, Portugal, Romania, Slovenia, Finland, Sweden). The Digital for Development Hub is (D4D) to ensure connectivity, synergies and mutual exchange between the EU and partners through three strategic targets: increasing investment in the digital transformation of partner countries, promoting comprehensive value rules for the digital economy and society and fostering stronger and strategic EU engagement in international digital partnerships. These strategic targets are achieved through five operational targets: exchange of

D4D expertise between team Europe D4D members and establishment of a dialogue with multi-stakeholder partnerships; fostering sustainable, responsible and inclusive digital investment in partner countries; the establishment of collective monitoring of all D4D activities by the EU and its Member States; cooperation in the implementation of joint projects under the D4D and the development of standards, standards and prerequisites to ensure that the targets and activities of the Hub D4D comply with international law and fundamental values and principles. D4D Hub has been launched for the following regions: Africa, Latin America and Caribbean, Asia-Pacific and since October 2023 for the EU Neighbourhood (South Partnership, Eastern Partnership and Western Balkans).



## 6 STAKEHOLDER FEEDBACK

For the purpose of drafting this document, the State Secretary of the Central State Office for the Development of the Digital Society, as the competent body for drafting this document, issued a decision on the establishment of the expert working Group for drafting the proposal the Policy Programme “road to Digital decade 2030”, the Decision determined the President and Vice-President of the expert working Group, as well as other members who are representatives of the Government of the Republic of Croatia and ministries, other state administration bodies and agencies, the academic community and economic associations. The expert working Group shall consist of a broad range of members to ensure the participation of public and private stakeholders. For example, the academic community includes many science and technology institutions, while economic associations represent craftsmen, SMEs, corporations, etc. The figure below shows all bodies involved in the drafting of this document.



The expert working Group worked on the draft proposal for the document from June to October 2023, i.e. until January 2024 after preliminary comments and proposals by the EU Commission. During this period, several activities were carried out with the aim of including all relevant stakeholders in the process of drafting this document:

At the beginning of June, an initial meeting of the expert working Group was held during which members were informed about the purpose and methodology of drafting this document, and a work plan was presented with clear deadlines for providing comments and suggestions. Also, the members of the expert working Group were presented with the initial version of the analysis of the current situation and the National target for contribution to digital goals. The members of the expert working Group were then invited to present their comments and suggestions on the initial draft version of the document. More than 30 comments and suggestions were received, and each member was informed about the status of his suggestion, i.e. how the suggestion was implemented or why suggestions were not implemented. For example, the status of implementation of individual projects, especially in the area of digital competences, has been updated in the analysis of the situation. At the same time, the most discussion during this phase was on the topic of achieving the digital goal related to the number of ICT professionals. Finally, a common consensus was reached between SRS members on the national contribution to the number of ICT experts.

The second meeting of the expert working Group was also held, at which members were presented with the initial versions of the overview of measures and activities to achieve digital goals. The members of the expert working Group then had one month to review and comment on the first three chapters. During this period, the developer received comments from members and sent direct comments to ensure the availability of relevant data and views of all stakeholders. Over 50 comments were received during this phase on measures to achieve digital goals. Special focus was on the names of the measures, as well as their content. Furthermore, the authorities responsible for implementing individual measures should have given their consent. SDURDD, as the competent authority for drafting this document, implanted any relevant suggestion from SRS members or explained to the suggestion giver why it was not implemented.

The third meeting of the expert working Group was held in early July, where the members were presented with initial versions of measures to contribute to the achievement of general targets. During this period, SDURDD continued to receive SRS comments and adequately implement them or explain why they were not implemented. At the same time, the developer of this document started to develop a chapter on multi-state projects in cooperation with relevant stakeholders. Stakeholders involved during this phase are also participants in defined multi-state projects.

Upon drafting the complete document, the developer submitted the complete document for revision to all members of the expert working Group. During this phase, members have had the opportunity to comment on and revise each chapter of the document. The developer of the document in question received comments by mid-July and a memory was created with all comments and suggestions from members of the expert working Group. The pro-memory contains more than 100 comments and suggestions, as well as an explanation of whether the suggestion is accepted or not. Members of the expert working Group were informed of the status of their comments and suggestions. All these bodies participated in the process of drafting the draft document proposal by giving their opinion and participating in the meetings of the expert working Group. During this phase, members focused on the improvement of individual measures to contribute to digital targets, especially when it comes to the expected impact and the necessary means to achieve it.

Upon receiving initial comments and further clarifications, especially regarding the digital connectivity target, the developer updated the national roadmap. The document was then sent again for revision to individual members of the expert working Group, i.e. the holders of measures whose measures required additional revision in accordance with the comments of the European Commission. A special discussion was again held on the digital connectivity target, and according to national capacities, the holder of the measures then made a final decision on measures to contribute to this digital target.

After finalization of the document, in cooperation with the targeted stakeholders of the members of the expert working Group, the full version of the document was again sent for inspection to all members of the expert working Group, who again had the opportunity to comment and/or suggest an amendment in the Croatian Roadmap. The developer of this document implemented all relevant comments, while for others he provided justification as to why they were not implanted.

The document was then sent for revision to the European Commission in early October and a second round of comments was received at the end of November. The developer then again targeted the relevant members of the expert working Group in addressing the comments of the European Commission. Cooperation between developers and relevant stakeholders has resulted in the finalization of the Croatian Roadmap.

Upon receiving comments and suggestions from the EU Commission in December 2023, a working group was additionally engaged, supplementing some parts with available data, and the document was available to each member of the working group via a joint Teams channel for review, revision, and compliance, or alternatively, via e-mail sent by the developer.

During the drafting process, four workshops were held with all members of the expert working Group, representing a wide range of public and private stakeholders. At the same time, over ten meetings of the relevant body were held with the developer or the debater of several relevant stakeholders, such as on the number of ICT experts and proposed measures. Each member of the expert working Group had several opportunities to comment on any chapter of the national roadmap and the holder implemented it or explained why the suggestion was not implemented. The Croatian Roadmap has therefore been agreed with all relevant national stakeholders, considering the capacities of the developer of this document.

In addition to active participation of stakeholders that are part of the expert working Group, e-consultations with interested civil society members were conducted during the preparation of this roadmap. Prior to the adoption of this document by the Government of the Republic of Croatia, e-consultations were conducted with all interested citizens by publishing the draft on the website of the Central State Office for the Development of Digital Society. Civil society members had the opportunity to present their comments and suggestions on the proposed draft, while the developer implemented the suggestion or explained why it was not implemented. This ensures the participation of every interested citizen in the process of drafting this document. The final version of the Croatian roadmap was then passed at a session of the Government of the Republic of Croatia.

## 7 OVERALL EFFECT AND CONCLUSION

Digital technologies fundamentally change our daily lives, work and business, and how people travel, communicate and connect with each other. Digital communication, social media and their interaction, e-commerce and digital companies are changing our world. Digital technologies generate an increasing amount of data that, if aggregated and used, can lead to the creation of entirely new resources and new values. It is a transformation of the importance of almost equal to the industrial revolution.

The European Union aims to strengthen its own digital sovereignty and set its own standards for a new digital age, instead of following someone else's. At the same time, man needs to be put at the centre of creating a more sustainable and prosperous digital future, in line with the exceptionally important and present Declaration on Digital Rights and principles. An anthropocentric approach in this context entails: I) offer new opportunities to businesses; II) encourage the development of reliable technologies; III) support an open and democratic society; IV) enable a dynamic and sustainable economy; and V) help combat climate change and implement the green transition. Therefore, the Commission has set up a policy agenda for the Digital decade and set concrete and quantified **digital targets for 2030**.

By 2030, Croatia plans to fully achieve the first digital goal of 80% of citizens with at least basic digital skills. Therefore, the continuous development of citizens' digital competences will be encouraged through targeted education and training, as well as through the workforce for the application of digital technologies. At the same time, the digital maturation of primary and secondary education systems will be carried out to modernise higher education for the digital age. An investment of 240,5 million is envisaged to achieve this target. EUR.

Croatia will contribute to the second digital goal of 20 million. ICT experts in the EU with 120 tis. ICT in until 2030. To achieve this, it is planned to increase the number of people with qualifications and ICT, develop an incentive framework for attracting researchers in STEM and ICT areas, encourage informal education and retraining of adults to acquire the ICT skills of employees, develop research and technology infrastructure and implement a Declaration on commitment to women in the digital world. An investment of 176.5 m is envisaged to achieve this goal. EUR.

Croatia will endeavour that by 2030 all end-users in a fixed location are covered by a gigabit network to the network termination point and that all populated areas are covered by next generation high-speed wireless networks with performance at least equal to 5G, in accordance with the principle of technological neutrality. Preconditions for spatial planning and faster construction will be provided and the impact of the costs of using real estate for network development will be regulated. At the same time, the impact of the costs of using real estate on network development will be regulated and the use of high-speed services will be encouraged. An investment of just over 362 m is planned to achieve this goal. EUR.

It is currently unknown what the value of semiconductor production in the Republic of Croatia is, however, estimated that the current contribution is small in the total value of EU semiconductor production. However, in order to improve the competitiveness of this sector in the Republic of Croatia, it is planned to network the activities of all stakeholders: from state institutions to the university community and economic operators, with a view to sharing knowledge, good practices, fostering research and innovation.

Furthermore, the current value around the number and schedule of safe and climate-neutral peripheral nodes in the Republic of Croatia is defined by the EC study. However, no measures have been defined to contribute to this digital target and it is envisaged to complement the measures in the subsequent iterations of the document.

Croatia is limited in terms of national contribution to the development of the quantum computer by 2025. However, Croatia will establish and upgrade technology and innovation infrastructure, i.e. a network of

infrastructure based on open innovation principles, which will directly stimulate the areas of quantum technologies and supercomputers, i.e. clean technologies, and green and digital transitions.

The goal of Croatia is for 75% of companies to use by 2030: cloud computing services, big data and/or artificial intelligence, according to their business. New regulatory solutions will therefore be introduced to facilitate business and promote the use of digital technologies. The availability of a digital database of anonymised data and tools enabling the development of new innovative solutions will also be ensured. An investment of 16.6 m is planned to achieve this goal. EUR.

Furthermore, by 2030 Croatia will achieve the target of 90% of SMEs with at least a basic level of digital intensity in line with the planned target, funding for cultural and creative industries to adapt business to the digital single market will be implemented, non-tax and para-fiscal benefits will be reduced and public services for entrepreneurs will be digitalised. At the same time, additional funding will be implemented to invest in the deployment of new technologies and a network of Digital Innovation Hubs (DIH) and European Digital Innovation Hubs (EDIH) will be disseminated. An investment of 160.5 m is envisaged to achieve this goal. EUR.

In order to create an enabling environment for doubling the number of unicorns in Croatia by 2030, participation in EDIC projects and the diversification of capital markets and improving access to alternative financing will be encouraged. An investment of around 30 million is envisaged to achieve this target. EUR.

With the aim of digitising all public services for citizens and entrepreneurs by 2030, state information infrastructure will be upgraded, all public services will be standardised and digitalised, human capacities will be strengthened, and officials will be trained to acquire digital competencies. At the same time, a centralised customer support system for all e-services will be established and a digital mobile platform will be created. An investment of 124.5 m is envisaged to achieve this goal. EUR.

Croatia has already achieved its 11th digital goal because all adult citizens have access to their electronic health records through the Health Portal. Also, a national Eid scheme has been established and greater use of Eid will be encouraged.

In line with the policy of the Digital decade Policy Agenda, Croatia has envisaged measures for and several **general targets in line with the European Declaration on Digital Rights and principles**. To improve “digital citizenship”, examples of envisaged measures are as follows: updating the smart specialisation Strategy, improving the digitalisation of the social benefits system between the national and local levels, digitalisation and informatization of the Croatian Employment Service (EHZZ). Within the category of general targets “Fostering leadership and sovereignty”, examples of envisaged measures are as follows: strengthening the capacity of the police to combat cybercrime, establishing application solutions in tourism with the aim of administratively relieving entrepreneurs and transforming tourism models towards sustainability, introducing an e-State exam and developing a network of seismological data. While for the third category of general targets, the “contribution to the green transition” are some of the identified measures: revitalisation, construction and digitisation of the energy system and accompanying infrastructure for decarbonisation of the energy sector, and other measures for the development of public infrastructure.

The roadmaps also lists **multi-state projects**, large projects that no Member State could develop on its own. As stated, Croatia plans to participate in eight EDIC projects so far: AGRI food EDIC, 1 + million genome, EDIC for language technologies – ALT-EDIC, innovative massive public Administration interconnected transformation services (IMPACT) EDIC, European blockchain services Infrastructure Consortium EBSIC-EDIC, local Digital twins, EDIC for the deployment of the Cybersecurity skills Academy and EUCAIM EDIC.



## APPENDIX I GENERAL TARGETS OF THE EU TAKING INTO ACCOUNT THE DECLARATION ON DIGITAL RIGHTS AND PRINCIPLES

1. The European Parliament, the Council, the Commission and the Member States shall cooperate to support and achieve the following general targets at Union level (“general targets”), as defined in the [Decision establishing the 2030 Digital Agenda \(2022/2481\) in Article 3 \(1\)](#):

(a) promoting an anthropocentric, inclusive, transparent and open, fundamental rights-based digital environment in which secure and interoperable digital technologies and services are in line with and strengthen the principles, rights and values of the Union and are accessible to all and everywhere in the Union;

(b) strengthening the collective resilience of Member States and bridging the digital divide, achieving gender and geographical balance by promoting lasting opportunities for each individual, developing basic and advanced digital skills and competences, including through vocational and professional training and lifelong learning, and fostering the development of high-efficiency digital capacities through horizontal education and training systems;

(c) ensuring the Union's digital sovereignty in an open manner, in particular a secure and accessible digital and data infrastructure capable of effectively storing, transmitting and processing large amounts of data enabling other technological developments, thereby supporting the competitiveness and sustainability of the Union industry and economy, in particular SMEs, and the resilience of Union value chains and fostering the start-up enterprise ecosystem and the smooth functioning of European Digital Innovation Hubs;

(d) promoting the deployment and use of digital opportunities to reduce the geographical digital divide and ensure access to digital technologies and data under open, accessible and fair conditions in order to achieve a high level of digital intensity and innovation in Union enterprises, in particular start-ups and SMEs;

(e) developing a comprehensive and sustainable ecosystem of interoperable digital infrastructures where high performance computing, edge computing, cloud computing, quantum computing, artificial intelligence, data management and network connectivity work together to promote their use in businesses in the Union and create opportunities for growth and jobs in research, development and innovation; and ensuring that the Union has a competitive, secure and sustainable cloud data infrastructure, with high standards of security and privacy and in compliance with Union data protection rules;

(f) promoting the Union's digital regulatory environment to support the ability of Union enterprises, in particular MEPs, to compete fairly along global value chains;

(g) ensuring that participation in democratic life online is possible for everyone and that public, health and care services are accessible to all in a trusted and secure environment on the internet, in particular to disadvantaged groups, including people with disabilities, and in rural and remote areas, providing inclusive, efficient, interoperable and personalised services and tools with high standards of security and privacy;

(h) ensuring that digital infrastructures and technologies, including their supply chains, become more sustainable, resilient and energy and resource efficient, minimising their negative impact on the

environment and society, and contribute to a sustainable circular and climate-neutral economy and society in line with the European Green deal, including by promoting research and innovation contributing to this target and developing methodologies to measure the energy and resource efficiency of the digital space;

(i) facilitating fair and non-discriminatory conditions for beneficiaries during the digital transformation process across the Union by strengthening synergies between private and public investment and the use of Union and national funds and by developing predictable regulatory and support approaches, which also cover regional and local levels;

(j) ensuring that all policies and programmes relevant to the achievement of the digital targets set out in Article 4 are taken into account in a coordinated and coherent manner in order to contribute fully to the European green and digital transition, while avoiding overlaps and minimising administrative burdens;

(k) improving resilience to cyber-attacks, contributing to increasing risk awareness and knowledge of cyber security processes, and making greater efforts by public and private organisations to achieve at least a basic level of cyber security.

2. When cooperating to achieve the general targets set out in this Article, Member States and the Commission shall consider the digital principles and rights set out in the European Declaration on Digital Rights and the Digital decade principles.



## APPENDIX II METADODOLOGY OF CALCULATING INDICATOR TARGET FOR ANOTHER DIGITAL TARGET

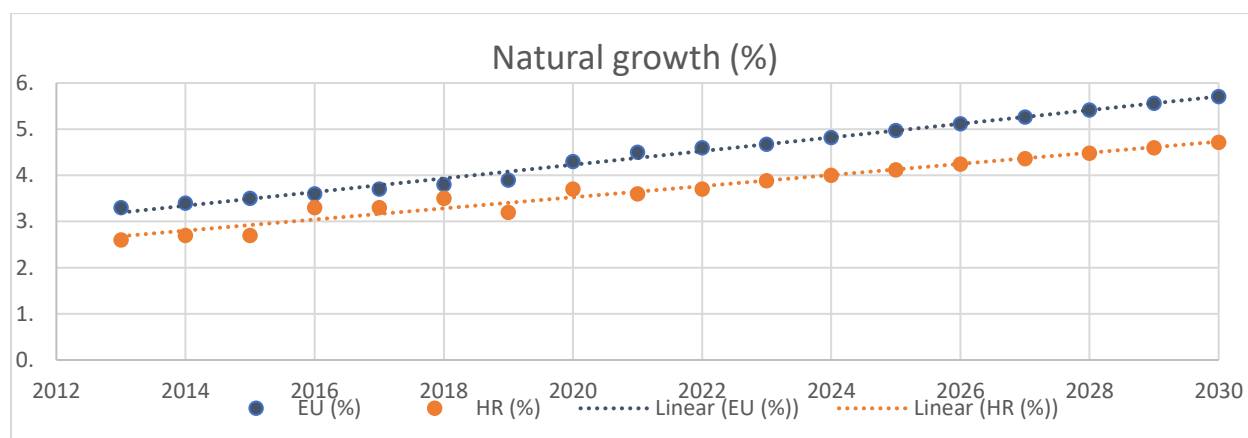
The chapter below describes the methodology for setting the target for THE DESI indicator - 1b1 ICT experts (% of employees aged 15-74) measuring the contribution to the EU's second digital target "at least 20 million ICT professionals are employed in the Union, promoting women's access to this area and increasing the number of ICT graduates".

As a first step, linear regression was made based on [historical data for the Republic of Croatia and the EU for the period 2013-2022](#). The table below shows the number (in thousands) of ICT specialists employed during the period 2013-2021.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Apsolutna vrijednost EU (tis.)	6,143.8	6,328.4	6,550.2	6,913.8	7,179.6	7,573.6	7,853.7	8,422.7	8,927.0	9,370.2
Apsolutna vrijednost RH (tis)	38.8	42.3	43.0	52.3	53.8	57.9	53.7	61.4	59.7	63.4
Udio u radnoj snazi EU (%)	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.3	4.5	4.6
Udio u radnoj snazi RH (%)	2.6	2.7	2.7	3.3	3.3	3.5	3.2	3.7	3.6	3.7

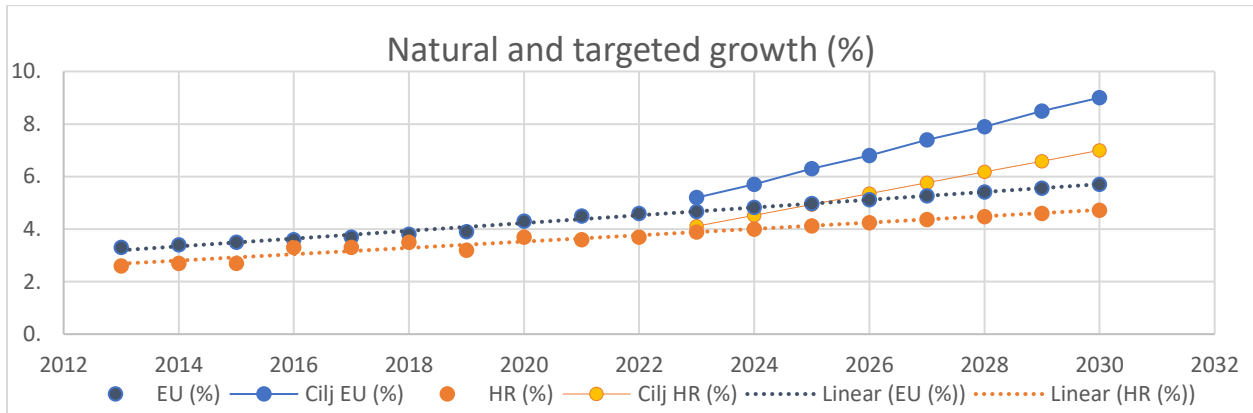
Source: Eurostat - ISOC\_SKS\_ITSPT employed ICT specialists - total

Based on historical data, linear regression was made for the period up to 2030, and the results are presented in the graph below. According to historical trends, Croatia would be at 4.7% in 2030, while the EU would be at 5.7% of ICT experts in the overall workforce, which is in absolute terms about 80 tis. ICT experts in the Republic of Croatia.



However, the second target of the EU is to employ at least 20 million ICT professionals in the Union, promoting women's access to the field and increasing the number of ICT graduates. Compared to 2022, the aim is to double the number of ICT professionals in the EU. In the Digital Croatia Strategy 2032, as a

key performance indicator for the fourth digital goal of developed digital competence for life and work in the digital age, the goal is to double the share of ICT professionals in the total workforce by 2030, i.e. to reach a value of 7% of ICT professionals employed in the total workforce. In absolute terms, the goal is to have about 120 tis in 2030. ICT experts in the Republic of Croatia. The graph below shows the difference between EU and RC targets and values based on linear regression of historical data. The measures defined in this document are expected to contribute to the achievement of the 2030 target.



	2023	2024	2025	2026	2027	2028	2029	2030
<b>Cilj EU (%)</b>	5.2	5.7	6.3	6.8	7.4	7.9	8.5	9.0
<b>Cilj HR (%)</b>	4.1	4.5	4.9	5.4	5.8	6.2	6.6	7.0
<b>Cilj HR (broj IKT stručnjaka)</b>	70,286	77,143	84,000	92,571	99,429	106,286	113,143	120,000

APPENDIX III OVERVIEW OF THE VALUE OF INDIVIDUAL INDICATORS OF THE DIGITAL DECADE OVER THE PREVIOUS PERIOD

