

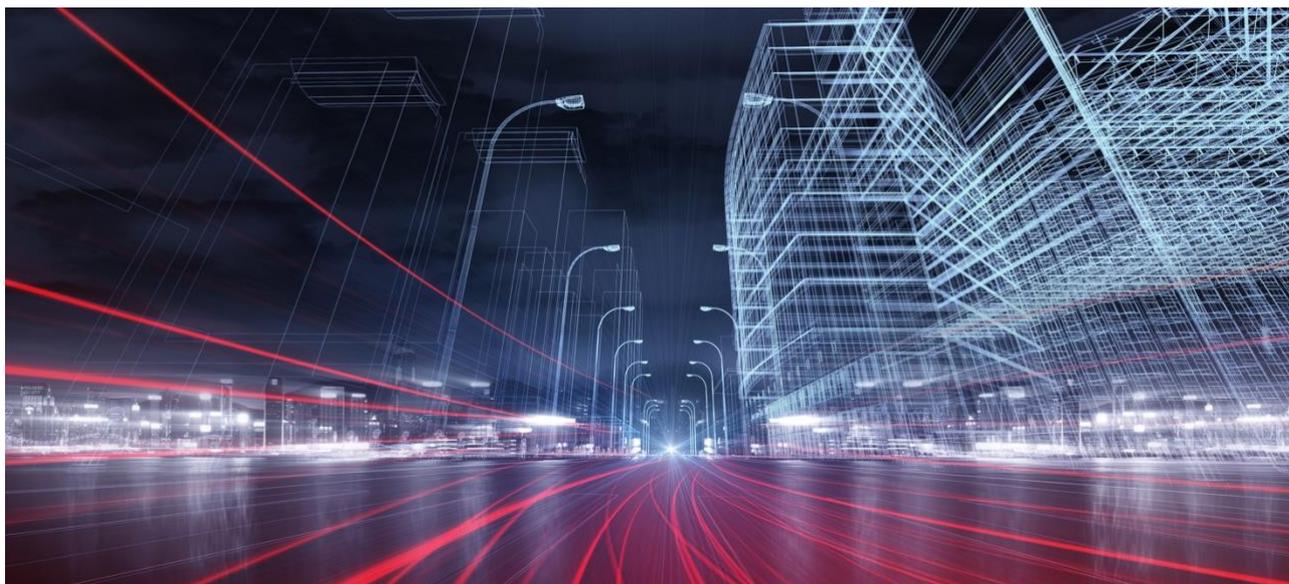


# DIGITAL CITIES CHALLENGE

## Digital Transformation Strategy for the city of Rijeka

### *Digital Ri-Wave*

July 2019



# Digital Cities Challenge

Digital Transformation Strategy for the city of  
Rijeka: Digital Ri-Wave

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## Executive Summary: Rijeka digital transformation

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### **The City of Rijeka is a central node in the Digital Cities Challenge network**

The Digital Cities Challenge, an initiative of the European Commission, helps to achieve sustainable economic growth in Rijeka through the integration of advanced technologies. The initiative fosters complementarities and synergies between existing policies, involving digital priorities (e.g. city development strategy, Smart Specialisation, Rijeka Smart City, etc.) and the newly planned policy actions supporting digital transformation.

The ambition is that the city of Rijeka will act as a model for other Croatian and European cities. By developing and testing novel policy levers in a collaborative approach with the involvement of other cities as peers and city networks to strengthen international positioning, Rijeka will demonstrate how to reap the benefits offered by the transformative power of digitalisation. It will showcase how to fill the gaps which are currently hindering its advancement and capture the benefits of digital transformation.

### **The digital transformation strategy for Rijeka: Digital Ri-Wave**

The mission and vision statements on the digital transformation of Rijeka is the main output of the first step of the digital transformation strategy. It is based on the results of a self-assessment by stakeholders, a review of current strategy and policy documents, an assessment visit including interviews with 25 stakeholders, and a vision and ambition workshop with 15 selected stakeholders. The intention is to create a clean, safe, thriving urban environment where people can reach their full potential through education, commerce, culture, recreation and wellness. The digital transformation of the city of Rijeka is focused on mindset and cultural shifts in business and civil service delivery; from analogue to digital. While, such a technologically aided shift is desirable, it is of equal importance to all that the uniqueness of the city is preserved.

The **mission statement** of the Digital Transformation Strategy for Rijeka (DTSR) is *to efficiently transition from an industrial city to an economically diverse one that attracts nurtures and retains digital talent, for sustainable economic development and improved quality of life.*

The future direction and aspirations of the city are elaborated in three key areas, defined by the following ambitions:

- 1. To further develop a digitalised and horizontally integrated public administration system that provides better public services.**
- 2. To leverage digital technologies in the service of enterprise and community development by improving information flow among stakeholders.**
- 3. To develop a culture of lifelong learning, focused on digital literacy and other relevant skills.**

The roll-out of this strategy will be guided by the implementation of 6 operational objectives, 2 per vision and ambition statement:

- OO1: To further improve the digitalisation of the local administration by expanding the e-Governance platform.
- OO2: To promote and initiate support activities aimed at ecosystem development through digital orientation and public/private/institutional collaboration.
- OO3: To create a physical location for creative application of creative technology and IT industry, that would facilitate and accelerate knowledge exchanges between stakeholders through repurposing of unused industrial legacies (such as factories), into knowledge centres.
- OO4: To create a specific platform for digitalisation of wellness (such as sports), arts & culture, through flagship projects.
- OO5: To popularise the participation of firms in projects aimed at building their digital competencies.
- OO6: To collaborate with learning institutions to support the creation of digital programs and encourage learning for all ages.

Key stakeholders of the city participated in assessment exercises, utilising the SAT, performance indicators, interviews and workshops, to determine the digital maturity level of Rijeka. The results highlighted the starting points of the discussion on how to develop a robust digital transformation strategy.

The main findings of the assessment show that Rijeka is in the early stages of its digital transformation journey, requiring improvement in the 8 key dimensions (infrastructure, access to data, digital skillset, digital competence of companies, governance and leadership, support services, finance, and especially, community).

The engagement of political leadership, the Mayor and the City Council of the City of Rijeka will be of much value to achieving digital transformation in Rijeka. They provided strategic orientation and ensured that the process of developing and operationalising the strategy supporting digital transformation is translated into a portfolio of relevant actions supporting each other towards achieving a common goal that is tailored to the local context.

### **The strategy roadmap for the city of Rijeka**

The city has identified the list of activities to be implemented in the short, medium and long terms, in order to make its strategic mission and ambition a tangible reality. As such, a total of 11 activities and 3 pilot activities have been identified, under the different operational objectives of the strategy. Key activities to be implemented as part of the strategy are (1) Centre of Competences for Smart Cities, (2) Production park Torpedo and (3) Incubator for creative technologies and IT industry “Energana”. These projects will introduce both the needed technological infrastructure and successful cooperation between private, academic and public sector that will increase competitiveness of local economy and especially digital entrepreneurship.

The outlines of the **governance of the digital transformation strategy** have also been defined.

The organisation responsible for overseeing the implementation of the Digital Transformation Strategy in Rijeka (DTSR) is the **Supervisory Board for Smart City and Digital transformation** formed of representatives of the different City departments. The Mayor of the City of Rijeka actively participates in all DCC-initiated initiatives. The important mechanism for the multiplication of the outcomes and outputs of the DTSR is also the Urban Agglomeration Rijeka (UAR), that consists of four cities (Rijeka, Opatija, Kastav and Kraljevica) and six municipalities (Čavle, Kostrena, Viškovo, Klana, Lovran and Mošćenička Draga). The UAR was established in 2015 by the decision of the Minister of Regional Development with the purpose of fostering investment through the European Integrated Territorial Investment Mechanism (ITU). The Coordination of the Mayor and Chief of Staff established the **Competitiveness Council**, which has already formed four working groups for business infrastructure, marketing and promotion, knowledge and technology, and team for a maritime-oriented economy. The **Business Infrastructure Group** is a group which will receive reports about the progress of DTSR and help to disseminate the IT best practices among cities and municipalities included in Urban Agglomeration Rijeka fostering by that the digital transformation of the wider region that goes beyond the city of Rijeka.

Measurement and impact analysis will monitor and assess the DTSR implementation and its short- and long-term results. The Supervisory Board for Smart City and Digital transformation is responsible for the introduction of the monitoring system that measures the progress of defined indicators with respect to planned actions.

# 1. Introduction to the Digital Cities Challenge

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According to the recent data, 72% of the EU's population lives in cities, towns and suburbs, making them the engines of the continent's economy. Cities generate 85% of Europe's GDP, they also face multiple, interconnected challenges, including energy and climate change, employment, migration, social inequality, and water, air and soil pollution.

However, through advanced digital technologies, Europe has the opportunity to re-invent the way we manage our cities' development and respond to the big societal challenges, such as efficient health management, cleaner environment, green mobility, and offering great-value jobs. Due to their high density, cities are put in a very good position to create innovative ecosystems made up of a wide array of different stakeholders from government, industry, finance, academia, communitarian organisations, social partners, etc. Cities have the capacity to make policies become reality.

In this context arises the **Digital Cities Challenge**, an initiative of the European Commission with the main purpose to support the cities in their path to digital transformation. DCC offers policy advice and support to 15 cities in Europe, namely **Alcoy**, **Algeciras** and **Granada** in Spain, **Arad** and **Iasi** in Romania, **L'Aquila** in Italy, **Kavala**, **Patras** and **Thessaloniki** in Greece, **Sofia** in Bulgaria, **Ventspils** in Latvia, **Grand-Orly Seine Bièvre** in France, **Pori** in Finland, **Rijeka** in Croatia,



and **Guimarães** in Portugal. The support to be offered will speed up the digital transformation and the industrial modernisation of cities in order for them to take full advantage of the 4th industrial revolution.

This initiative draws inspiration on the recommendations set out in the "Blueprint for cities as launch pads for digital transformation". In addition, it will reinforce the networking among model cities, facilitate their participation in on-going European initiatives in similar policy fields, strengthen stakeholder collaboration, cross-regional partnerships and stimulate investments.

The selected Digital Cities receive support in the form of field advisory services to be provided by a group of high-level experts and peer reviewers and offer the possibility for city representatives to participate in a series of capacity building and networking seminars. These activities take place in four Academy seminars during which cities share practices, take advantage of peer to peer learning and work together and in thematic groups on the steps of their transformation trajectory.

This document has been developed in the framework of the field advisory services being delivered in the City of Rijeka. It represents the main output of the second step of the digital transformation strategy: definition of a digital transformation strategy. The strategy definition report has been developed by the Digital City team on the basis of:

- The results of the Self-Assessment Tool and collection of Key Performance Indicators at the city level which took place during July and August 2018. A total of 41 valid replies were collected through the SAT.
- A literature review of key documents provided by the local leadership team (cf. Appendix IV for full list of documents consulted).
- A vision and ambition workshop which took place on 7<sup>th</sup> September 2018.
- Strategy workshops that took place on 20<sup>th</sup> of November, 13<sup>th</sup> December, and 20<sup>th</sup> December.

This document represents the key input to the work to be performed during the forthcoming phases of the digital transformation trajectory (i.e. roadmap development, monitoring and implementation).

## 2. Overview of the digital maturity assessment for Rijeka

Major stakeholders in Rijeka participated in the assessment exercise, which helped determine the current level of digital maturity of the city and indicated the starting points for discussion on how to develop a digital transformation strategy. 41 respondents completed the Self-Assessment Tool (SAT) which focused on the role of city as an enabler of industrial transformation. The table below shows the cross-section of respondents in the SAT.

Overall assessment results show that Rijeka is on its path to digital maturity. The city can take advantage of the digital transformation process to tackle its economic and social challenges.

While improvement is required in all eight dimensions, **it is more so the case in the community dimension**, highlighting an overall need for digital improvement. This assessment is fully validated by the interviews and the vision/ambition workshop. Since the desired transformation is horizontal, ecosystem development is of primary focus. SWOT analyses results are:

	Strengths	Weaknesses
 <b>Infrastructure</b>	<ul style="list-style-type: none"> <li>&gt; Free Wi-Fi</li> <li>&gt; Good mobile broadband</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Free WiFi is only available in a fraction of the territory</li> <li>&gt; Fixed infrastructure is bad</li> </ul>
 <b>Access to data</b>	<ul style="list-style-type: none"> <li>&gt; Good availability of data</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Open data sets are not structured</li> <li>&gt; Poor quality data from other providers e.g. the chamber of commerce</li> <li>&gt; Unavailable financial data</li> </ul>
 <b>Digital skillset</b>	<ul style="list-style-type: none"> <li>&gt; Digital literacy is promoted by the city</li> <li>&gt; People are aware of the necessity</li> </ul>	<ul style="list-style-type: none"> <li>&gt; No culture of lifelong learning</li> <li>&gt; Lack of formal institutions dedicated to digital education for non-university students</li> <li>&gt; Investment in digital skills is out-of-pocket</li> </ul>
 <b>Companies' digital competencies</b>	<ul style="list-style-type: none"> <li>&gt; Early adoption of tech is common</li> <li>&gt; Companies across industries are on the path of digital transformation</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Few companies are willing to adapt their processes</li> <li>&gt; The ICT literacy of employees is very low compared to the EU average</li> <li>&gt; The use of ICT for commercial activities and logistics is low</li> </ul>
 <b>Community</b>	<ul style="list-style-type: none"> <li>&gt; A digital community consisting ICT companies, universities and research centers is present</li> <li>&gt; Strong presence of NGOs</li> </ul>	<ul style="list-style-type: none"> <li>&gt; No critical mass</li> <li>&gt; Fragmented ecosystem</li> <li>&gt; Limited interaction between ICT and non-ICT entities</li> </ul>
 <b>Finance</b>	<ul style="list-style-type: none"> <li>&gt; Lots of available funding options</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Commercial lending terms of banks are unattractive</li> <li>&gt; Pressure on tight public budgets</li> <li>&gt; Startups and SMEs have difficulty accessing funds</li> </ul>
 <b>Support services</b>	<ul style="list-style-type: none"> <li>&gt; City supports entrepreneurship and support infrastructures for start-ups are in place</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Lack of business mentors and experts</li> <li>&gt; Lack of experimentation and prototype development infrastructures (e.g. fab-labs)</li> </ul>
 <b>Governance &amp; leadership</b>	<ul style="list-style-type: none"> <li>&gt; Efforts at coordination and consensus building are being made</li> <li>&gt; The city has a developed strategy with clear action plans</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Complex relationship between national, regional and city governments</li> <li>&gt; Working in silos</li> </ul>

	Opportunities	Threats
 <b>Infrastructure</b>	<ul style="list-style-type: none"> <li>&gt; Digital infrastructure projects such as 5G and fixed infrastructure upgrades, are in the pipeline</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Slow national government</li> <li>&gt; Property rights and regulatory barriers</li> </ul>
 <b>Access to data</b>	<ul style="list-style-type: none"> <li>&gt; Use for improving policy design</li> <li>&gt; Use by businesses to improve their services and decision-making</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Lack of political will</li> <li>&gt; Obsolete worldview of key decision makers</li> <li>&gt; Fear of transparency could thwart the development of useful applications</li> </ul>
 <b>Digital skillset</b>	<ul style="list-style-type: none"> <li>&gt; Private institutions could develop new training services</li> <li>&gt; Mobilising and coordinating training initiatives to stimulate demand</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Lack of funding</li> <li>&gt; Curriculum design process is too long</li> </ul>
 <b>Companies' digital competencies</b>	<ul style="list-style-type: none"> <li>&gt; Digitalisation of processes in key economic sectors</li> <li>&gt; Opportunities for exploiting synergies among sectors across the value chain</li> <li>&gt; Knowledge development in Smart Cities technologies and services of local ICT companies</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Brain drain of highly capable employees</li> <li>&gt; Financial constraints</li> <li>&gt; Prioritisation issues</li> <li>&gt; Sluggish adaptation to global trends</li> </ul>
 <b>Community</b>	<ul style="list-style-type: none"> <li>&gt; European capital of culture 2020</li> <li>&gt; Systematic development of the ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Lack of sharing culture; reluctance to pass on knowledge</li> <li>&gt; Lack of accountability</li> </ul>
 <b>Finance</b>	<ul style="list-style-type: none"> <li>&gt; Utilising innovation procurement and pre-competitive procurement methods for securing digital applications</li> <li>&gt; Innovative funding methods e.g. ICOs</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Regulatory constraints</li> <li>&gt; Tough competition in claiming funding</li> <li>&gt; Government resistance to new procurement methods</li> </ul>
 <b>Support services</b>	<ul style="list-style-type: none"> <li>&gt; Digitalisation of G2B and G2C processes and services</li> <li>&gt; Strengthening existing innovation support infrastructures</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Inability to attract and retain experts</li> </ul>
 <b>Governance &amp; leadership</b>	<ul style="list-style-type: none"> <li>&gt; EU funds for regional cooperation</li> <li>&gt; Strengthening the coordination role of the City</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Politically motivated blockage of project implementation in the city council</li> </ul>

Through the Digital Cities Challenge processes, a separate detailed assessment report has been produced.

### 3. Mission and Ambition statements

The mission and vision statements of Rijeka is the result of active participation and collaboration of the local stakeholder community, within the framework of the DCC methodology. Ideas from the interviews got refined and articulated after the workshop with 15 carefully selected participants from a cross-section of the society. The unanimous interest is in assuring economic development without losing quality of life. A lively discussion on ways to create a digital transformation strategy that would positively impact the economy and social growth of Rijeka, is consolidated in the mission and vision statements.

The mission statement is characterised by the metamorphosis needed for effective digital integration.

## Mission statement

*To efficiently transition from an industrial city to an economically diverse one, that attracts, nurtures and retains digital talent, for sustainable economic development and improved quality of life.*

## Vision and ambition statements

### **1. To further develop a digitalised and horizontally integrated public administration system that provides better public services.**

- Rijeka is in the early stages of dealing with the challenge of simplifying complicated bureaucratic processes and inefficient service delivery, via deployment of cutting-edge digital tools. Despite having many services already online (e.g. permits), two major challenges include the culture of working in silos and a general lack of awareness of the available possibilities on existing city platforms. Ensuring access to streamlined, horizontally integrated services would prevent time loss and frustration. The aim is to use digital solutions to release a portion of the daily burdens of citizens and businesses, by reengineering existing processes and procedures to increase speed and ease of use, resulting in improved information flows, coordination and governance.

### **2. To leverage digital technologies in the service of enterprise and community development by improving information flow among stakeholders.**

- The community dimension was identified as the most lagging area in Rijeka after the initial assessment process. To encourage entrepreneurship and deal with the current fragmentation of the start-up and innovation ecosystem, Rijeka needs to establish a venue where business support organisations, digital and non-digital companies can collaborate for mutual growth and development i.e. the Digital Factory. The fragmented ecosystem refers to: a) physical dispersion of organisations and (sometimes duplicating) initiatives across the city, b) lack of awareness of existing range or new products/services of other players, and c) lack of strategic product/service development among players that fill value chain gaps and unlock new opportunities.

The Digital Factory would help with reducing fragmentation and strengthening coordination so that cross-stakeholder linkages would enable a dynamic enterprise sector to emerge. The creative, inclusive and supportive environment created by such a platform would be very conducive to the growth of tech companies, by making experimentation and prototype development infrastructure available. To move forward

with this ambition and diminish information asymmetry, it would be necessary to promote the culture of collaboration and information sharing among businesses, knowledge organisations, and other stakeholders. The Digital Factory would cover broad sectors such as technology, healthcare, creative, tourism, education, services, etc., fostering an expansion of the knowledge ecosystem through proximity, competitiveness, and access to information and expertise.

**3. To develop a culture of lifelong learning, focused on digital literacy and other relevant skills.**

- Beyond the standard curricula, there is a lack of options for knowledge acquisition beyond the formal institutional framework such as universities. Digital education and talent management is a critical area in need of improvement in the city that would help tackle the prevalent issue of labour shortage and skills gap. With the increased integration of technology in society, digital literacy is becoming a valuable tool for equality of opportunity with lifelong learning being an essential part of it. Rijeka would need to establish skills training options at all levels and incite changes to educational curricula, in order to achieve its digital potential. Developing this area would expand learning opportunities in Rijeka to include informal settings, peer-to-peer learning, and vocational training as part of the DCC strategy. Such an increase in the pool of experts would lead to improvements in diversity of services, diversity of enterprise and business competitiveness.

Hence, the vision of a digitally transformed Rijeka rests on the three main pillars outlined above. Activities to operationalise each of the vision statements could have a broad societal impact. It would also equip Rijeka with a strategic outlook on its digital transformation by providing a structure and an overarching objective to the various ongoing and future activities.

## 4. Digital Ri-Wave: the digital transformation strategy of the city of Rijeka

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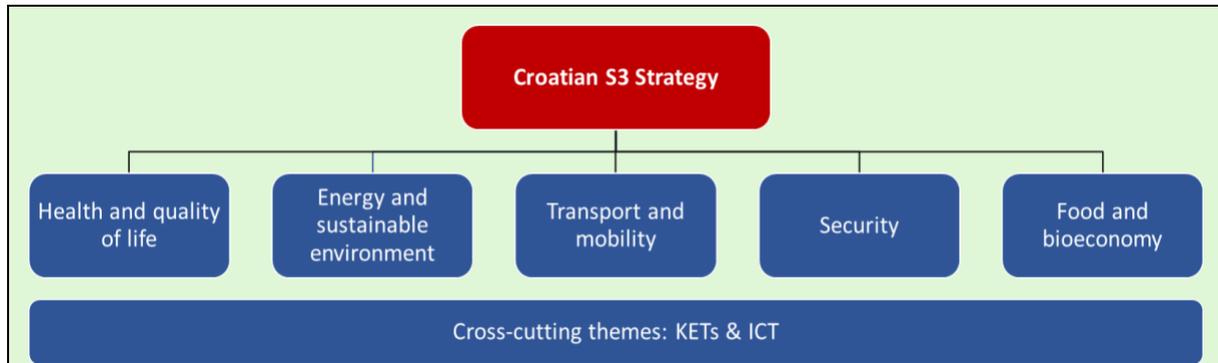
### 4.1. Strategy orientation

Given its mission objectives, the digital transformation strategy of Rijeka aims to consolidate disparate agendas with digital components into an integrated, robust whole. The strategy thus allows for the interconnectivity among all stakeholders, thereby creating benefit from both their diverse and complementary perspectives, to set the course towards the achievement of the set objectives.

The focus of the strategy is on future-proofing the city by leveraging its digital technological potential for economic growth and wellbeing. Strategic research & development, social innovation, digitalised arts and culture, ICT integration, etc., become drivers of ecosystem development, with positive impacts on local businesses (mainly SMEs), local talent and general wellbeing.

*Box 1 The links to other existing strategies at the city level*

The strategy is linked to other existing national and city strategies. It is aligned with both the Smart Specialisation Strategy (S3) and the Croatian National Development Strategy 2030, which aims to transform the economy by building capacities in areas of greatest potential i.e. knowledge and innovation. The S3 of Croatia was prepared in 2016 and revealed the challenging task that is the identification of industrial and technological sectors with comparative advantages. Priorities were set on the basis of entrepreneurial development process supported by strategic intelligence about the country's challenges, competitive advantages and potential for excellence. The diagram below shows the national priorities and the role of ICT in the transformation of the industries therein.



Source: Smart Specialisation Strategy of the Republic of Croatia (2016–2020).

The National Development Strategy 2030 envisions digitalisation as both horizontal and vertical priorities, as shown in the diagram below.



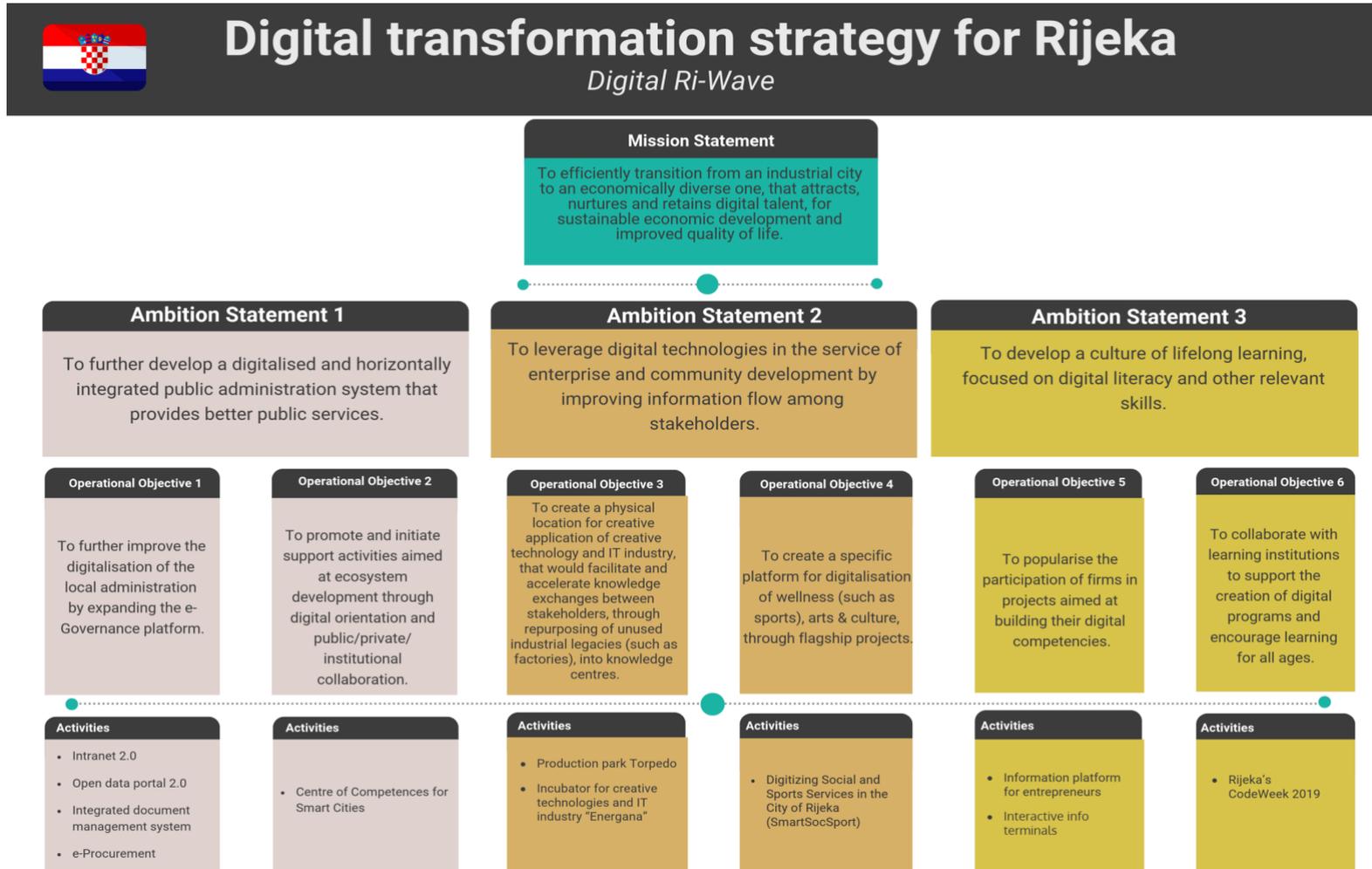
Image source: Croatian Ministry of Regional Development and EU Funds.

The priorities in both national strategies show an overarching focus on turning around the economy. This DCC strategy expands on the digital agenda in the Development Strategy of the City of Rijeka (based on the EU 2020 strategy) for the period 2014 to 2020. It is envisioned as a key component in the Strategic Plan of Rijeka Smart City for the period 2019-2020 in addition to digital infrastructure and the centre of competence (Smart Ri). The centre of competence is focused on research commercialisation in the priority areas of energy & sustainable environment, and transport & mobility.

In conclusion, the digital transformation strategy of Rijeka focuses on economic development and competitiveness by working to overcome the fragmentation of the innovation value chain, and bridging the gap between the research and business sectors. It also focuses on smart skills development, setting the foundation for clustering.

The following figure provides an overview of the full digital transformation strategy for the city of Rijeka. The individual components are described in further detail in the following sections and sub-sections.

Figure 1 Overview of the Digital Transformation Strategy for the City of Rijeka



## 4.2. Operational objectives

Operational objectives reflect the means through which the city of Rijeka aims to achieve its ambition statements. They are called operational because they are of an actionable nature. They represent the ‘how’ behind the high-level strategic vision which has been developed by the local working group. As demonstrated in the following figure, operational objectives are linked to one or several ambition statements. The city of Rijeka has identified six operational objectives for its digital transformation strategy.

The following table provides a more detailed presentation of each of the operational objectives

Table 1 Presentation of the operational objectives of the Digital Transformation Strategy for the city of Rijeka

Operational objectives and description	Link to ambition statements and key city challenges and opportunities	Key Success Factors
<p><b>Operational objective 1:</b> To further improve the digitalisation of the local administration by expanding the e-Governance platform.</p>	<p>Linked to ambition statement 1. It would improve transparency, encourage efficiency, and strengthen the coordination role of the City.</p>	<ul style="list-style-type: none"> <li>• Delivering the digital services required by local businesses and citizens.</li> <li>• Internal leadership and capacity building of city personnel on design and consistent delivery of e-services within the city administration.</li> <li>• Providing e-services that facilitate the digital transformation of core local industries and services.</li> </ul>
<p><b>Operational objective 2:</b> To promote and initiate support activities aimed at ecosystem development through digital orientation and public/private/institutional collaboration.</p>	<p>Linked to ambition statement 1. Awareness raising about the possibilities of the Open Data portal for developing new business and services.</p>	<ul style="list-style-type: none"> <li>• Expanded datasets on the Open Data portal</li> <li>• Supporting digital focused events and encouraging local, national and international collaboration.</li> <li>• Facilitating easier access of firms to specialised equipment such as super computer, 3D printers, etc., to ease prototyping and experimentation.</li> </ul>
<p><b>Operational objective 3:</b> To create a physical location for creative application of creative technology and IT industry, that would facilitate and accelerate knowledge exchanges between stakeholders, through repurposing of unused industrial</p>	<p>Linked to ambition statement 2. This would deal with the challenge of ecosystem fragmentation, enable the development of IoT based solutions, and create opportunities for social innovation.</p>	<ul style="list-style-type: none"> <li>• Centralised location for the incubators and accelerators that enable ideation, experimentation and access to shared resources.</li> <li>• Multi-sector collaboration and service integration.</li> <li>• Easier access to relevant information that could help in market development.</li> <li>• Easier access to technologies.</li> </ul>

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Operational objectives and description	Link to ambition statements and key city challenges and opportunities	Key Success Factors
legacies (such as factories), into knowledge centres.		<ul style="list-style-type: none"> <li>• Easier access to funding and investment.</li> </ul>
<p><b>Operational objective 4:</b> To create a specific platform for digitalisation of wellness (such as sports), arts &amp; culture, through flagship projects.</p>	<p>Linked to ambition statement 2. This would help Rijeka leverage its brand as European Capital of Culture 2020, to preserve its cultural heritage and boost its tourism offers through digital transformation.</p>	<ul style="list-style-type: none"> <li>• Integration of new, digital work cultures such as data-driven decision making, resource management, performance management, etc.</li> <li>• Integrating physical fitness and wellbeing as both a cultural and smart touristic offer.</li> <li>• Improvement of the scope and diversity of artistic &amp; cultural offerings.</li> <li>• Strengthen the capacities within the sector(s) and its linkage with other sectors.</li> </ul>
<p><b>Operational objective 5:</b> To popularise the participation of firms in projects aimed at building their digital competencies.</p>	<p>Linked to ambition statement 3. Encourage micro and small firms to use business support infrastructure such as co-working space, mentoring programs, professional events, etc., that would be made available to them.</p>	<ul style="list-style-type: none"> <li>• Definition of missing capacities within firms.</li> <li>• Familiarity with the local IT community.</li> <li>• Improved firm collaboration with universities for developing high skilled talent.</li> <li>• Talent retention strategies to prevent brain drain.</li> </ul>
<p><b>Operational objective 6:</b> To collaborate with learning institutions to support the creation of digital programs and encourage learning for all ages.</p>	<p>Linked to ambition statement 3. Creating upskilling and reskilling opportunities to build digital capacities of the general populace (workers, long-term unemployed, the elderly, people with disabilities, etc.).</p>	<ul style="list-style-type: none"> <li>• Providing the training identified by firms as missing, through customised programs.</li> <li>• Clarity on the general level of learning needed (from basic to advanced).</li> <li>• Expansion and unification of current learning initiatives to avoid duplication.</li> </ul>

## 5. Digital strategy roadmap and planned activities

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The roadmap is the component of the digital transformation strategy that describes the practical implementation of the strategy, including priority activities and governance. Priority activities refer to the specific actions through which the strategy will be implemented. An activity can be described as a tangible and concrete action, which has a beginning and an end, accompanied by a specific objective and resources for its implementation. The results of activities (**i.e. outputs**) are meant to contribute to reaching the operational objectives identified in the previous section.

### 5.1. Overview of proposed activities

The digital transformation strategy for the city of Rijeka will be implemented through a group of activities, identified in the framework of the Digital Cities Challenge. Activities are meant to contribute to reaching the operational objectives defined in the framework of the strategy, which in turn will contribute to the city's ambition and mission. The list of priority activities may be expanded with time. For now, the city has decided to implement **11 activities**, as described in the following table.

Activity name	Link to Operational Objectives	Main implementing partner (i.e. owner of the activity)	Brief description and goals
<b>A01: Intranet 2.0.</b>	00-01-01 To improve further the digitalisation of the local administration by expanding the e-Governance platform. expanding the e-Governance platform.	City of Rijeka / IT Department	A platform and a governance set to enable centralised access to tools and information employees need to perform their jobs
<b>A02: Open data portal 2.0</b>	00-01-01: To improve further the digitalisation of the local administration by expanding the e-Governance platform.	City of Rijeka / IT Department	Increased maturity and number of data sets published on <a href="http://data.rijeka.hr">http://data.rijeka.hr</a> data Implemented visualisations Promotion of open data
<b>A03: Integrated document management system</b>	00-01-01 To improve further the digitalisation of the local administration by expanding the e-Governance platform.	City of Rijeka / IT Department	Centralised digital storage system for the official documents of the City of Rijeka and institutions for which the City of Rijeka is the founder
<b>A04: Centre of Competences for Smart Cities</b>	00-01-02 To promote and initiate support activities aimed at ecosystem development through digital orientation and public/private/institutional collaboration.	Smart Ri Ltd. (Company established by the City of Rijeka)	36 new Smart City products/services ready for market 52 new employed in involved organisations
<b>A05: Production park Torpedo</b>	00-02-01 To create a physical location for creative application of technology and IT industry	City of Rijeka - Department of Entrepreneurship, Rijeka Development Agency Porin Ltd.	Expand the system of existing entrepreneurial incubators in the City of Rijeka
<b>A06: Incubator for creative technologies and IT industry “Energana”</b>	00-02-01 To create a physical location for creative application of technology and IT industry, that would facilitate and accelerate knowledge exchanges between	City of Rijeka - Department of Entrepreneurship - Information Technology Department - Department of Culture	24 office spaces for entrepreneurs Photo/video studio Game development studio Data Centre Educational area, meeting rooms,

Activity name	Link to Operational Objectives	Main implementing partner (i.e. owner of the activity)	Brief description and goals
	stakeholders, through repurposing of unused industrial legacies (such as factories), into knowledge centres.	- City Department of Development, Urban Planning, Ecology and Land Management	conference area, common spaces
<b>A07: Information platform for entrepreneurs</b>	00-03-01 To popularise the participation of firms in projects aimed at building their digital competencies.	Department of Entrepreneurship, City of Rijeka IT department, City of Rijeka	Physical, but also the digital (virtual) space for informational and educational services
<b>A08: Interactive info terminals</b>	00-03-01 To popularise the participation of firms in projects aimed at building their digital competencies.	Department of Entrepreneurship, City of Rijeka IT department, City of Rijeka	User-friendly, well-structured system that will provide information services
<b>A09: Digitising Social and Sports Services in the City of Rijeka (SmartSocSport)</b>	00-02-02 To create a specific platform for digitalisation of wellness (such as sports), arts & culture, through flagship projects	Department of Health and Social Welfare Department of Sports and Technical Culture Information Technology Department	Reorganise the existing business process of granting social rights by developing and introducing advanced data analysis and recording system to support the entire process. Integrate existing, completely independent subsystems of three main actors in sports in Rijeka
<b>A10: e-Procurement</b>	00-01-01 To improve further the digitalisation of the local administration by expanding the e-Governance platform. 00-01-02 To promote and initiate support activities aimed at ecosystem development through digital orientation and public/private/institutional collaboration.	Department for procurement ICT Department	Establish a system of electronic delivery and receipt of bids in procurement procedures Make processes transparent to all stakeholders

Activity name	Link to Operational Objectives	Main implementing partner (i.e. owner of the activity)	Brief description and goals
<b>A11 – Rijeka’s CodeWeek 2019</b>	00-03-02 To collaborate with learning institutions to support the creation of digital programs and encourage learning for all ages	City of Rijeka, Department of Education and Schooling City of Rijeka, ICT department	Promotion of Rijeka’s open data portal and software coding skills on different IT platforms among teachers and pupils in elementary schools.

A detailed presentation of each activity is presented in the Appendix I.

## 5.2. The pilot activities

In order to begin the implementation of the strategy, the city of Rijeka has decided to carry out **3 pilot activities**:

### **PILOT 1: City eServices platform integrated with NIAS (National Identification and Authentication System)**

Croatian Government launched project e-Citizen in order to modernise, simplify and speed up communication between citizens and the public administration, and increase the transparency of the public sector in providing public services.

The e-Citizens system consists of:

- Central Government internet portal,
- Personal User Mailbox,
- National Identification and Authentication System (NIAS)

National e-ID issuance started on the 8th of June 2015.

City of Rijeka introduced e-Services internet platform (<http://gov.rijeka.hr>) on a local level presenting information about more than 400 services provided by city departments, institutions and local utility companies. City portal, at a moment, offers legacy authentication mechanism without any integration with national one.

The target of the Pilot project is to develop software that will integrate local e-Services internet portal with NIAS. That will make possible the usage of national e-ID for accessing the local personal data, instead of username/password mechanism, which is in usage at a moment. It

is planned that internal IT department of the City together with outsourced specialised services (budgeted 3.000€) develop and implement the software solution by the end of 2019.

**PILOT 2: In-LoRe (Croatian eInvoicing for Local and Regional Authorities) 2017-HR-IA-0143 eInvoicing**

EU countries and the European Commission decided to introduce a European Standard for eInvoicing in response to the many e-invoice formats used across the EU. These varied formats cause unnecessary complexity and high costs for businesses and public entities. While all contracting authorities will have to accept electronic invoices that comply with the European norm, nationally specific rules will remain valid. In other words, the Commission's initiative will result in a norm and not in a European e-invoicing infrastructure. City of Rijeka participates in project "In-LoRe (Croatian eInvoicing for Local and Regional Authorities)" which supports the uptake of eInvoicing services by Croatian public entities, including local and regional authorities, allowing them to send and/or receive electronic invoices compliant with the EN (supported by both syntaxes of the EN).

Pilot phase of project will have a result of establishing the information system and organisation for receiving all e-Invoices, which are outcomes of the public procurement processes in the City of Rijeka. Pilot is funded by EU funding - The Connecting Europe Facility (CEF) and by City budget. It will finish until July 2019.

**PILOT 3: Rijeka Tourist Board Digital Transformation**

The objective of the Pilot project is Digitalisation of the business processes of the Rijeka Tourist Office and the Digitalisation of the Rijeka Tourist Office Marketing Channels. Plan is to conduct office automation; cloud based digital communication and collaboration system implementation (Office 365), optimisation of the content management system and redesign of all e-marketing resources. Payments will be possible by Rijeka e-Wallet mobile application supported by Blockchain technology. Full implementation is planned for 31.12.2019.

## **5.3. Timetable for implementation**

It is foreseen that the strategy will be implemented for the next 4 years. Activities will be gradually implemented, on the basis of the following indicative timetable.

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

Table 2 Timetable for the implementation of the digital transformation strategy for the city of Rijeka

Activity	...-Jun 2019	Jul-Dec 2019	Jan-Jun 2020	Jul-Dec 2020	Jan-Jun 2021	Jul-Dec 2021	Jan-Dec 2022
A01 - Intranet portal							
A02 - Open data portal 2.0							
A03 - Integrated document management system							
A04 - Centre of Competences for Smart Cities							
A05 - Production park Torpedo							
A06 - Incubator for creative technologies and IT industry "Energana"							
A07 - Information platform for entrepreneurs							
A08 - Interactive info terminals							
A09 - Digitising Social and Sports Services in the City of Rijeka (SmartSocSport)							
A10 - e-Procurement							
A11 - CodeWeek 2019							

## 6. Strategy governance

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Governance is the implementation framework of the strategy for digital transformation. It consists of a set of rules, procedures and processes through which the implementation of the strategy will be overseen, managed and updated. The institutional framework is the most important contextual factor that influences governance through legislation and the autonomy of the governance processes.

The organisation responsible for overseeing the implementation of the **Digital Transformation Strategy in Rijeka (DTSR)** is going to be the **Supervisory Board for Smart City and Digital transformation** formed of representatives of the different City departments among which the ICT department, the Department of Entrepreneurship and the City Office must have at least one representative. The team has the task of project portfolio supervision, management and reports directly to the Mayor who will appoint the Leader of the Team, the two Deputies and the 5-6 additional members.

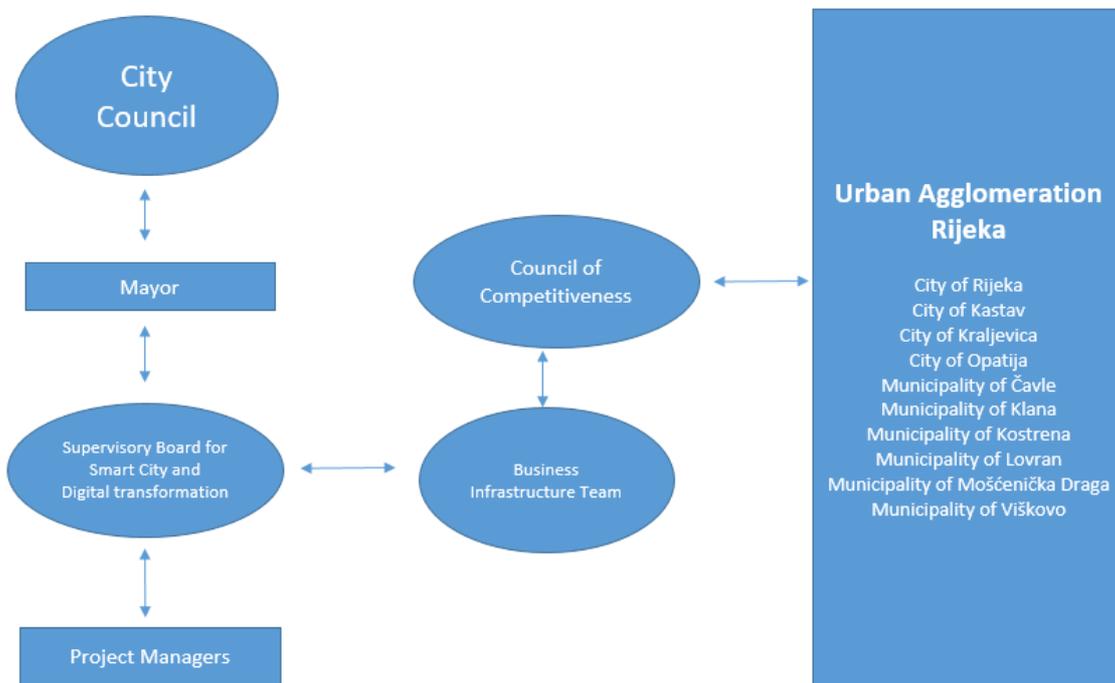
The Mayor of the City of Rijeka actively participates in all DCC-initiated initiatives at EU level and regularly receives operational information from the Supervisory Board. The Mayor, according to legal obligations, initially reported to the City Council about the DCC initiative and all activities conducted at the level of city administration. During the session of the City Council in February 2019, the Mayor submitted the report for the period July-December 2018, which outlined activities regarding to the preparation of the DTSR. Through the regular six-monthly reports, the City Council will monitor the DTSR progress. In addition, regular submission of this report creates the basis for making further necessary decisions at the City Council level. Depending of additional projects some other team members may be involved in operational management but the governance model should stay the same: Supervisory Board reports to the Mayor who reports to the City Council.

The Urban Agglomeration Rijeka (UAR), consisting of four cities (Rijeka, Opatija, Kastav and Kraljevica) and six municipalities (Čavle, Kostrena, Viškovo, Klana, Lovran and Mošćenička Draga). It was established in 2015, by the decision of the Minister of Regional Development with the purpose of investing through European Integrated Territorial Investment Mechanisms (ITU). The Coordination of the Mayor and Chief of Staff established the Competitiveness Council, which has already formed four working groups for business infrastructure, marketing

and promotion, knowledge and technology, and team for a maritime-oriented economy. **Business Infrastructure Team** is a team at the Competitiveness Council to consider specific regional proposals from private sectors entrepreneurs and crafts makers. It will disseminate the DCC initiative among cities and municipalities included in Urban Agglomeration Rijeka fostering by that the digital transformation of the region.

Figure 2 Overview of the Strategy Governance

## Governance structure for the DTSR implementation



**Measurement and impact** analysis will monitor and assess the DTSR implementation and its short- and long-term results. Supervisory Board for Smart City and Digital transformation is responsible for introduction of the monitoring system for measurement of the progress of defined indicators with respect to planned actions.

The **main challenge** for the DTSR is its high dependence to EU funding and the low capacity of the city budget available for the project and activities in the field of the entrepreneurship support and ICT development.

## 7. Monitoring and evaluation of the Digital Transformation Strategy

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In order to monitor and assess progress achieved as part of the digital transformation strategy, a performance assessment framework has been developed by the city team. In addition, the team has outlined preliminary evaluation plans and resources as part of an early evaluation plan.

### 7.1. Performance assessment framework

Strategy implementation and results monitoring will be conducted Supervisory Board for Smart City and Digital transformation on the basis of the performance assessment framework presented in Appendix V. Two levels of monitoring indicators and targets have been defined:

- **Outcome indicators** have been established at the level of the Ambition Statements.
- **Output indicators** have been established at the level of activities.

Project managers of every planned activity will provide data to Supervisory Board for Smart City and Digital transformation will be in charge of collecting all relevant data on all strategy monitoring indicators. The performance assessment framework will surely evolve as the city enters the full strategy implementation phase.

### 7.2. Strategy evaluation plan

In addition to monitoring the progress of strategy implementation, the Digital Transformation Strategy for Rijeka will undergo an internal evaluation within the next 4 years. The objective of the evaluation will be to verify the extent to which expected strategy results have been achieved, review the relevance of selected strategy priorities and objectives, and review the efficiency of strategy implementation and governance schemes. The Supervisory Board for Smart City and Digital transformation will propose the evaluation questions guiding the evaluation to the Mayor who will decide which of the principles are relevant to the process.

## **8. Results achieved and next steps**

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The participation of Rijeka in the Digital Cities Challenge initiative has led to the achievement of a certain number of results. The assessment of the digital maturity of Rijeka contributed to raise awareness internally, within the Municipality, as well as externally, among local stakeholders, for the need of digital transformation. Rijeka's DCC team has created a community with over 50 people engaged in workshops and online assessments. The level of engagement from IT companies is not sufficient. Rijeka needs to develop projects that will strengthen the interconnection between members of the ICT community in Rijeka and their connections with the City department responsible for entrepreneurship. During the process, Rijeka's DCC team established itself locally and regionally as a point of contact for digital transformation processes in the city and effective cooperation on digital matters between University of Rijeka, local government and entrepreneurs.

The Digital Cities Challenge initiative is the foundation for further work on Rijeka's digital transformation. It is included in Rijeka's Smarty City Strategic Action Plan and, by that fact, under regular review and undergoes a vote by the Rijeka Municipal Council. Rijeka has started the process of development of the Strategic Sustainable Development Plan for period beyond 2020 (2027, maybe 2030) which has to be aligned with the Croatian national Strategy that will be announced by the end of 2019. Until the end of the first quarter of 2020, the updated results from the DCC project in Rijeka will be included in Rijeka's new strategic document.

## Appendix I: Detailed presentation of activities

A01: Intranet 2.0.	
<b>Link to operational objective</b>	00-01-01: To further improve the digitalisation of the local administration by expanding the e-Governance platform.
<b>Description</b>	<p>The City of Rijeka has over 550 employees in different departments. The old intranet was hardly used by the employees as it didn't have many of the functionalities the users expected from such a platform. Also the design and the user experience felt dated and uncomfortable.</p> <p>The aim is to develop a new platform as the hub of internal communication and collaboration. The Intranet 2.0 needs to be a central place for all important documents that must be available to employees as well as an internal place of co-operation and team work, knowledge management and for dissemination of knowledge and internal exchange of good practice.</p> <p>Also, an Intranet governance structure will be established defining clear ownership and management structure with defined roles and responsibilities will be set up.</p> <p>Target population – employees of the City of Rijeka            General goal – to enable internal communication and collaboration            Specific goals – to deliver collaboration tools, to enable internal communications, to provide information repository of policies, templates, procedure manuals, to replace cluttered, crowded emails, etc.            Means of delivery – IT platform and a governance set to enable centralised access and usage of tools and information employees need to perform their jobs            Expected outcomes – collaboration tools, shared documents and templates, calendars, contacts, line-of-business applications etc.            Conditions for success – availability of tools, data and knowledge, willingness of owners to share it, timely updates to secure availability</p>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 12 months</li> <li>• Estimated date of implementation: 2021</li> </ul>
<b>Indicators to be achieved</b>	number of users, number of subjects
<b>Estimated cost and source of funding</b>	10.000€ City budget
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	City of Rijeka / IT Department

<b>A02: Open data portal 2.0</b>	
<b>Link to operational objective</b>	00-01-01: To further improve the digitalisation of the local administration by expanding the e-Governance platform.
<b>Description</b>	<p>The City of Rijeka Open data portal currently hosts more than 130 datasets generated by the City, City utility companies and institutions openly available to the public. It is a catalogue of open datasets; a digital library of information in machine readable formats. The aim is to further develop the Open data portal to be more than a simple catalogue of data, but to also demonstrate how open data can be used. This will be done through showcases of applications and visualisations built with open data. The Open Data Policy will also be developed to outline the principles, roles, and responsibilities related to the City of Rijeka's efforts to make data available in machine readable format for any public use.</p> <p>Target population – municipality, business, citizens, academia, policy makers, research institutes</p> <p>General goal – help stakeholders be more informed and facilitate evidence based policy making</p> <p>Specific goals – offer data to stakeholders so they can make more informed decisions but also experimentation, and research and development, help businesses create new products/solutions, keep citizens informed</p> <p>Means of delivery – analysis of what data would be useful for stakeholders, open data policy, partnership with research organisations, promotional events</p> <p>Expected outcomes – having large amounts of data available as well as numbers of showcases of applications and visualizations built with open data</p> <p>Conditions for success – availability of data, willingness of data collectors/owners to share it, timely updates to secure data integrity, availability of showcases and visualisations, open data policy developed</p>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 12 months</li> <li>• Estimated date of implementation: 2021</li> </ul>
<b>Indicators to be achieved</b>	Number of datasets, number of showcases, number of visualisations, number of visitors, number of mobile apps introduced, number of “hackaton” event organised
<b>Estimated cost and source of funding</b>	10.000€ Potential sources of funding: EU funding, City budget
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	City of Rijeka / IT Department

<b>A03: Integrated document management system</b>	
<b>Link to operational objective</b>	00-01-01 To further improve the digitalisation of the local administration by expanding the e-Governance platform.
<b>Description</b>	<p>Establish a unique centralised digital storage system for the official documents of the City of Rijeka and institutions for which the City of Rijeka is the founder.</p> <ul style="list-style-type: none"> <li>• Digitising current and durable materials with a focus on reuse of collected data</li> <li>• Implementing collaboration software and tools for creating and modifying documents</li> <li>• Authorised and secure data storage procedures and controls</li> <li>• Enabling access to documents to end users / citizens</li> </ul> <p>General goal: Citizens' Administration - Accelerating the Process Specific goals:</p> <ul style="list-style-type: none"> <li>• Improving security and access to documents</li> <li>• A simpler and faster access to available sources</li> <li>• Easier and better control of document implementation</li> </ul> <p>Target group: Employees and citizens Means of delivery: Document management system Expected outcomes: integral documentation platform, collaboration tools Conditions for success: secure, fast and easy-to-use documentation platform.</p>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 18 months</li> <li>• Estimated date of implementation: 2022</li> </ul>
<b>Indicators to be achieved</b>	Number of users, number of electronically signed document types, Number of processes and workflows
<b>Estimated cost and source of funding</b>	200.000€ Potential sources of funding: EU funding, City budget
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	City of Rijeka / IT Department

<b>A04: Centre of Competences for Smart Cities</b>	
<b>Link to operational objective</b>	00-01-02 To promote and initiate support activities aimed at ecosystem development through digital orientation and public/private/ institutional collaboration.
<b>Description</b>	<p>Centre of competence for smart cities is an innovation cluster that includes 16 entrepreneurs &amp; 4 research organisations that have effective cooperation on research and development projects.</p> <p>The Centre of competences for smart cities will allow the commercialisation of scientific research achievements of R &amp; D projects</p>

**A04: Centre of Competences for Smart Cities**

and the development of competences within 2 topics of the *Smart specialisation strategy (S3) of the Republic of Croatia 2016-2020*, Energy and Sustainable Environment and Traffic and mobility.

R & D projects planned within the Centre of Competence for Smart Cities project:

**1. SmartCity.Energy & Environment**

- *Development of solutions to improve energy systems and systems for environmental monitoring in smart cities*

Within context of this projects 5 research areas are identified: EnergyEfficiency, KPI Evaluator, SmartWaste, Smart Lighting Network, EmPower

**2. SmartCity.4D Intelligent Infrastructure**

Smart City 4D Intelligent Infrastructure (4DII) project will examine, explore and develop a system for efficient management of municipal infrastructure. The aim is to provide an innovative system of records and management of a wide range of data related to the infrastructure

**3. SmartCity.Trans**

SmartCity.Trans project is designed to improve the quality of life of citizens by establishing high-quality solutions in urban traffic and promoting and encouraging innovative, sustainable, clean and energy-efficient modes of traffic

**4. SmartCity.Surinmo**

The purpose of the project is to develop the SmartCity.SURINMO domain platform for enabling connected, energy-efficient and shared urban mobility, with an applicative component for end-users, also intended for optimising traffic flow and relieving traffic at a standstill, in terms of low-carbon mobility, which will be demonstrated in the area of the city of Rijeka.

eRoaming, eSigns, eCrossing, Smart parking, Car sharing, transport & energy analysis

**5. SmartCity.Living**

The aim of the project Smart City Living is to develop innovative services and products that will enable the exploitation of resources and the data from the smart city to manage the movement of residents and tourists, and the dynamics of life in the city.

The developed system would collect data from various sources such as anonymous data from mobile networks of telecom operators, from other projects of the CoC and sensors from micro locations (beacons) and other sensors (such as RFID tags) positioned at locations where people are circulating.

Points of contact with the citizens: Multifunctional information points - public telephone, free wi-fi, vending, measuring various parameters of the environment, selling tickets / vouchers, bitcoins; possibilities for display, Rijeka Radar, Citizen Alert, Security barometer; sub-system: TrafficSources - solution for smart traffic management at peak loads

**6. SmartCity.Modesty**

- *Development of a platform for energy efficient management and monitoring of smart city with the help of cloud computing and a set of applications for citizens and businesses with high level of data security*

The role of the project Modesty is to increase the energy efficiency of the smart city and more efficient development of the economy in line with sustainable development. The project will develop and install a network of interactive, modular senses (IoT) in the city of Rijeka in order to collect data in real time about the state of the urban environment (carbon dioxide

A04: Centre of Competences for Smart Cities	
	<p>and other greenhouse gases, temperature, noise, vibration, etc.), infrastructure and activities necessary for research and public use. In addition to sensors that will measure the activity and parameters on the mainland, sensors will be set for measuring marine pollution and sea currents.</p> <p>Apps for: UV radiation, residents suffering from asthma and various allergies with recommended routes and times of movement, energy consumption in public buildings, routing traffic etc.</p>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 3 years</li> <li>• Estimated date of implementation: Start: 1.6.2019., Planned completion: 31.5.2022.</li> </ul>
<b>Indicators to be achieved</b>	<p>36 new Smart City products/services ready for market 52 new employees in all partners organisations</p>
<b>Estimated cost and source of funding</b>	<p>Total cost 17,3 mil € Sources of funding: Operative programme Competitiveness and Cohesion Croatia 2014-2020, partner companies and research institutions (16 companies and 4 research institutions)</p>
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	<p>Smart Ri Ltd. (Company established by the City of Rijeka)</p>

A05: Production park Torpedo	
<b>Link to operational objective</b>	<p>00-02-01 To create a physical location for creative application of technology and IT industry, that would facilitate and accelerate knowledge exchanges between stakeholders, through repurposing of unused industrial legacies (such as factories), into knowledge centres.</p>
<b>Description</b>	<p>The purpose of the project is to expand the system of existing entrepreneurial incubators in the City of Rijeka and to increase their quality and services they provide. Production park – Torpedo will provide support infrastructure that will increase the competitiveness of small and middle - sized entrepreneurs of the Primorje - Gorski Kotar County and beyond.</p> <p><b>Specific goals</b> are reconstructing of the existing hall and equipping with modern equipment for additive technologies that will enable SMEs the easier access to high-quality services of the entrepreneurial incubator and improvements of their business and entrepreneurial skills as also as transfer of knowledge through the establishment of new education programs.</p> <p><b>Target population:</b> 1. The City of Rijeka and Rijeka Development Agency Porin , 2. Entrepreneurs users of the existing entrepreneurial incubator Rujevica and entrepreneurs who expressed interest in using the services of entrepreneurial incubator, Start-up incubator Rijeka, entrepreneurs beginner and entrepreneurs in growth and development, especially those who want to develop production and related activities based on new technologies.</p>

<b>A05: Production park Torpedo</b>	
	<p><b>Means of delivery:</b> to find the appropriate construction company to carry out the works, to find a team that will use technology and who will transfer knowledge, suppliers of equipment</p> <p><b>Conditions for success:</b> creating a technology park that meets the needs of local entrepreneurs, cooperation among project stakeholders, cooperation with local entrepreneurs, employed and educated 2 engineers for additive technology equipment</p>
<b>Timeframe</b>	Estimated date of the start of operational work: 1.10.2019.
<b>Indicators to be achieved</b>	<p>Indicators:</p> <ul style="list-style-type: none"> <li>-1.557.34 m<sup>2</sup> of net useful surface</li> <li>- 21 functional spatial units of which is 16 units provided Incubator users</li> <li>- occupancy of the infrastructure will be 87.37%</li> <li>-purchased and installed equipment and software packages in accordance with all defined Specifications: 3D scanner, 3D printer, 3D sand printer, 3D printer larger volume, 3D printer smaller volume, software package for backward engineering, CAD / CAM modelling software package, a graphics card and industrial notebook features, laptop, projector, projection screen</li> </ul>
<b>Estimated cost and source of funding</b>	<p>Estimated cost: 3.066.416,27 EUR</p> <p>Sources of funding : EU funds, City of Rijeka (Department of Entrepreneurship), Rijeka Development Agency Porin Ltd.</p>
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	City of Rijeka (Department of Entrepreneurship), Rijeka Development Agency Porin Ltd.

<b>A06: Incubator for creative technologies and IT industry “Energana”</b>	
<b>Link to operational objective</b>	00-02-01 To create a physical location for creative application of technology and IT industry, that would facilitate and accelerate knowledge exchanges between stakeholders, through repurposing of unused industrial legacies (such as factories), into knowledge centres.
<b>Description</b>	<p>Plan to renovate about 2.700 m<sup>2</sup> of space of the former Energy plant within the ex. Paper mill complex, which will be offered to SMEs, together with educational programmes, mentoring, networking, internationalisation and organisation of events. The entrepreneurial support will primarily be aimed at the development of IT solutions for Smart Cities, IoT (<i>Internet Of Things</i>), AI (<i>Artificial Intelligence</i>), multimedia, game development, open data. Data Centre services (Infrastructure as a Service, colocation of servers) will be offered as a commercial service.</p> <p>The aim of the project is further development of ICT community in Rijeka. We want to increase its competitiveness, increase the number of ICT SMEs, number of employees in the ICT sector, and create higher level of synergies with the existing companies and research institutions, which will result with new projects, products/services ideas and in the increase of ICT innovations developed in Rijeka region.</p> <p>The premises will consist of:</p> <ul style="list-style-type: none"> <li>• 24 office spaces for entrepreneurs</li> <li>• Photo/video studio</li> <li>• Game development studio</li> <li>• Data centre</li> <li>• Educational area, meeting rooms, conference area, common spaces</li> </ul>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 3 years</li> <li>• Estimated date of implementation: Start: 1.1.2020., Planned completion: 31.12.2022.</li> </ul>
<b>Indicators to be achieved</b>	<ul style="list-style-type: none"> <li>- 10 office spaces renovated and equipped</li> <li>- 12 Educational and mentorship programme for IT, gaming, photo/video</li> <li>- 4 events organised</li> </ul>
<b>Estimated cost and source of funding</b>	<p>Total cost 4,5 mil €</p> <p>Sources of funding: Operative programme Competitiveness and Cohesion Croatia 2014-2020, Integral Territorial Investments – Urban Agglomeration Rijeka, City of Rijeka</p>
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	<p>City of Rijeka</p> <ul style="list-style-type: none"> <li>- Department of Entrepreneurship</li> <li>- Information Technology department</li> <li>- City Department of Development, Urban Planning, Ecology and Land Management</li> <li>- Department of Culture</li> </ul>

<b>A07: Entrepreneurial Information platform (EIP)</b>	
<b>Link to operational objective</b>	00-03-01 To popularise the participation of firms in projects aimed at building their digital competencies.
<b>Description</b>	<p>The main goal is to provide support to entrepreneurs and future entrepreneurs in the development of their business ideas and to encourage cooperation between IT sector and other business branches. Platform will have several functions:</p> <ol style="list-style-type: none"> <li>1. informative function: providing relevant information to users,</li> <li>2. administrative and logistical function: assistance in administrative procedures, cooperation with public administration and institutions in order to find best solutions for customers,</li> <li>3. educational function : educational and training services in the field of business, business management, investment planning and financial services in cooperation with local and international stakeholders,</li> <li>4. advisory function: economic and legal advice.</li> </ol> <p>EIP will become a unique interactive place for the transfer of ideas and views between entrepreneurs and city authorities, as well as a communication channel that combines all the business infrastructure of the City of Rijeka to potential end-users, providing integrated information on programs, projects and opportunities that can enhance entrepreneurship and stimulate its development. EIP will be a physical, but also the digital/virtual space.</p>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 24 months</li> <li>• Estimated date of implementation: second half of 2021.</li> </ul>
<b>Indicators to be achieved</b>	Key performance indicators and success criteria will be the result of initial preparation phase of the project
<b>Estimated cost and source of funding</b>	No estimation at this stage Potential sources of funding: EU funds, City of Rijeka
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Department of Entrepreneurship, City of Rijeka IT department, City of Rijeka

<b>A08: Interactive info terminals</b>	
<b>Link to operational objective</b>	00-03-01 To popularise the participation of firms in projects aimed at building their digital competencies.
<b>Description</b>	<p>Main goal: Establish user-friendly, well-structured system that will provide information in simple and efficient way.</p> <p>Setting up the info terminals (within the Information platform for entrepreneurs (PIC) and the Incubator for the creative industry Energana, Rijeka Development Agency PORIN...) through which the interested public can get necessary information and communicate with the city administration in terms of programs and projects for the development of entrepreneurship, business premises, city taxes and usage of service e-Government (application, registration, certification ...)</p>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Length: 12 months</li> <li>• Estimated date of implementation: end of 2021.</li> </ul>
<b>Indicators to be achieved</b>	Key performance indicators and success criteria will be the result of initial preparation phase of the project
<b>Estimated cost and source of funding</b>	<p>No estimation at this stage</p> <p>Potential sources of funding: EU funds, City of Rijeka</p>
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	<p>Department of Entrepreneurship, City of Rijeka</p> <p>IT department, City of Rijeka</p>

<b>A09: Digitising Social and Sports Services in the City of Rijeka (SmartSocSport)</b>	
<b>Link to operational objective</b>	00-02-02 To create a specific platform for digitalisation of wellness (such as sports), arts & culture, through flagship projects
<b>Description</b>	<p>The main challenge the project is going to tackle is to digitise and significantly improve existing social and sports services in the City of Rijeka. City services digitalisation and data management are crucial in modern cities like Rijeka. The ultimate goal is to boost the metropolis towards the route of a modern smart city and improve urban life. Both the model and the data shall be publicly accessible thorough dedicated user-friendly services, which allows citizens to observe and interact with the work of the public administration.</p> <p>In the City of Rijeka two main areas are identified and subject to change within the context of this project:</p> <p><b>Smart Social Services</b> - with the target to transform the existing business process of granting social rights by developing and introducing advanced data analysis and recording system to support the entire process. Emphasis of the project is on the development of a new system that will enable a simple, controlled and complete entry of all collected personal data of beneficiaries necessary for the realisation of their rights in an orderly and controlled fashion.</p> <p><b>Smart Sports Services</b> - with the target to integrate existing, completely independent subsystems of three main actors in sports in Rijeka, to make this system more efficient, more economical and accessible to citizens, as well as prevent duplication of business processes, stewardship and improvised solutions.</p> <p>Service and quality checks in both areas will be introduced.</p> <p>This project will be based on a public-private collaborative process that will allow the achievement of the following specific objectives:</p> <ul style="list-style-type: none"> <li>- To identify the mid-term needs of the city and citizens for new and innovative social and sports services</li> <li>- To carry out different interdisciplinary training programmes for citizens for any of particular domains (social services, sports, participation) executed by Faculty of Philosophy</li> <li>- Rijeka, University centre for Smart and Sustainable City in Rijeka and UNIPU, MEDRI</li> <li>- To build information system based on latest AI &amp; IoT technologies. The system is based on technologies that will ensure security, correct measurement of results, prevent abuses in the allocation and exploitation of social and sports services and ultimately prevent inadequate spending of public funds.</li> </ul>
<b>Timeframe</b>	<ul style="list-style-type: none"> <li>• Creating City Data Ontology Implementation 10/2019 - 12/2020</li> <li>• Smart Social Services Implementation 10/2019 - 08/2022</li> <li>• Smart Sport Services Implementation 10/2019 - 08/2022</li> <li>• Enhancing citizen participation with digital technologies Implementation 10/2019 - 08/2022</li> <li>• Closure and knowledge transfer Closure 09/2022 - 08/2023</li> </ul>
<b>Indicators to be achieved</b>	Key performance indicators and success criteria will be defined after the initial phase of the project. Delivery date: 31/12/2019.
<b>Estimated cost and source of funding</b>	3,864,717.55€ 80% - Urban Innovative Actions (UIA) - Initiative of the European Commission that provides urban areas throughout Europe with

<b>A09: Digitising Social and Sports Services in the City of Rijeka (SmartSocSport)</b>	
	resources to test new and unproven solutions to address urban challenges; 20% private partner's investment and City budget.
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Department of Health and Social Welfare Department of Sports and Technical Culture Information Technology Department

<b>A10: e-Procurement</b>	
<b>Link to operational objective</b>	00-01-01 To improve further the digitalisation of the local administration by expanding the e-Governance platform. 00-01-02 To promote and initiate support activities aimed at ecosystem development through digital orientation and public/private/ institutional collaboration.
<b>Description</b>	<p>The City Council of the City of Rijeka issued a Decision on the Arrangement of the Administrative Bodies of the City of Rijeka (Official Gazette of the City of Rijeka No. 6/18), which entered into force on 11 April 2018. The above-mentioned Decision establishes a new administrative body – Procurement department responsible for preparing and conducting procurement procedures for all the administrative bodies of the City of Rijeka. The new organisation requires reorganisation of business processes related to planning, preparation and implementation of public and simple procurement procedures, and it is imperative to develop and implement IT support system with optimally structured processes.</p> <p>The goal is to:</p> <ul style="list-style-type: none"> <li>• Improvement of a system of existing electronic delivery of user requests to initiate procurement procedures</li> <li>• establish a system of electronic delivery and receipt of bids in procurement procedures</li> <li>• make processes transparent to all stakeholders</li> <li>• reduce the risk of irregularities occurring in processes</li> <li>• achieve optimum effects by choosing the most economically advantageous bid</li> <li>• Simplify, accelerate and automate processes wherever possible using ICT</li> </ul>
<b>Timeframe</b>	01.01.2020. - 31.12.2020.
<b>Indicators to be achieved</b>	Implemented ICT solution Administration time for procurement processes
<b>Estimated cost and source of funding</b>	40.000€, City budget
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	Department for procurement ICT Department

<b>A11 – Rijeka’s CodeWeek 2019</b>	
<b>Link to operational objective</b>	00-03-02 To collaborate with learning institutions to support the creation of digital programs and encourage learning for all ages.
<b>Description</b>	<p>The Young Advisors for the Digital Agenda Europe launched EU Code Week in 2013 by. The European Commission supports EU Code Week as part of its strategy for a Digital Single Market. In the Digital Education Action Plan, the Commission especially encourages schools to join the initiative. The goal is to reach 50% of all schools in Europe by 2020.</p> <p>The City of Rijeka is the founder of 25 elementary schools for which it provides budgetary funds for supporting the programs and maintenance of the facilities. Department of Education and Schooling finances education and school programs above the national pedagogic standard. The project idea is to organise series of events in Rijeka’s elementary schools during the 2019 EU Code Week, which will take place between 5 and 20 October.</p> <p>EU Code Week is a grass-roots movement that celebrates creativity, problem solving and collaboration through programming and other tech activities. The idea is to make programming more visible, to show young, adults and elderly how you bring ideas to life with code, to demystify these skills and bring motivated people together to learn.</p> <p>Department of Education and Schooling and ICT department of the City of Rijeka will develop the concrete program by the end of July 2019. Main idea is to promote Rijeka’s open data portal and software coding skills on different IT platforms.</p>
<b>Timeframe</b>	Preparation phase form April 2019 up to September 2019. Date of implementation: from 5th to 20th of October 2019.
<b>Indicators to be achieved</b>	Number of events Number of volunteers Number of participants
<b>Estimated cost and source of funding</b>	3.000€, City budget
<b>Organisation / unit in charge of delivery (i.e. ownership of the activity)</b>	City of Rijeka, Department of Education and Schooling City of Rijeka, ICT department

## Appendix II: Performance assessment framework

### 1. Strategy outcomes

Ambition statement	Expected result	Monitoring indicator	Baseline	Target	Timeframe	Means of verification
<b>Ambition statement 1:</b> To further develop a digitalised and horizontally integrated public administration system that provides better public services	New IT systems and business models introduced in order to boost the cooperation among different internal (municipal) and external stakeholders & elimination of information silos	Number of users and entities involved	Exact number varies from one project activity to another	Significant improvement of measured indicators defined at the project (activity) level	4 years	Counting by the IT system or managers of the activities
<b>Ambition statement 2:</b> To leverage digital technologies in the service of enterprise and community development by improving information flow among stakeholders	New infrastructure (office and production space, equipment, educational and training programs, events) introduced in order to boost networking of digital stakeholders in Rijeka	Number of users and entities involved	0	30	4 years	Counting by the managers of the activities
<b>Ambition statement 3:</b> To develop a culture of lifelong learning, focused on digital literacy and other relevant skills	Raised awareness about the importance of variety of digital subjects among children, youth and entrepreneurs	Entities and individuals included in programs	0	200 business entities 100 individuals	4 years	Counting by the managers of the activities

## 2. Strategy outputs

Activity	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
<b>Activity A01: Intranet 2.0</b>	IT platform and a governance set to enable centralised access and usage of tools and information employees need to perform their jobs	Number of users	Average of 300 individual users per day	2 years	IT system counter
		Number of subjects	30	2 years	Counting by system administrator (human)
<b>Activity A02: Open data portal 2.0</b>	Large amounts of data available as well as numbers of showcases of applications and visualisations built with open data	Number of datasets	200	2 years	IT system counter
		Number of showcases	20	3 years	Counting by system administrator (human)
		Number of visualisations	20	3 years	Counting by system administrator (human)
		Number of visitors	Average of 1000 individual users per month	2 years	IT system counter
		Number of mobile apps introduced	10	3 years	Counting by system administrator (human)
		Number of “hackaton” events organised	2	2 years	Counting
<b>Activity A03: Integrated document</b>	Establish a unique centralised digital storage system for the official documents of the City of Rijeka and	Number of users	400	3 years	IT system counter

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

Activity	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
<b>management system</b>	institutions for which the City of Rijeka is the founder	Number of electronically signed document types	20	3 years	Counting by system administrator (human)
		Number of processes and workflows	30	3 years	Counting by system administrator (human)
<b>Activity A04: Centre of Competences for Smart Cities</b>	Innovation cluster that includes 16 entrepreneurs & 4 research organisations that have effective cooperation on research and development projects	Smart City products/services ready for market	36	3 years	Provided by project coordinator: Smart Ri Ltd.
		New employees in all partners organisations	52	3 years	Provided by project coordinator: Smart Ri Ltd.
<b>Activity A05: Production park Torpedo</b>	Reconstructing of the existing hall with modern equipment for additive technologies that will enable SMEs the easier access to high-quality services	Occupancy of the infrastructure	87.37%	3 years	Provided by project coordinator: Rijeka Development Agency - Porin

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

Activity	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
<b>Activity A06: Incubator for creative technologies and IT industry “Energana”</b>	Renovate about 2.700 m2 of space of the former Energy plant within the ex. Paper mill complex, which will be offered to SMEs, together with educational programs, mentoring, networking, internationalisation and organisation of events	Number of office spaces renovated and equipped	10	3 years	Provided by project coordinator: City of Rijeka - Department of Entrepreneurship
		Number of educational programs & mentoring	12	3 years	Provided by project coordinator: City of Rijeka - Department of Entrepreneurship
		Number of events	4	3 years	Provided by project coordinator: City of Rijeka - Department of Entrepreneurship
<b>Activity A07: Entrepreneurial Information platform (EIP)</b>	Cooperation between IT sector and other business branches	Key performance indicators and success criteria will be the result of initial preparation phase of the project			
<b>Activity A08: Interactive info terminals</b>	User-friendly, well-structured system that will provide information in simple and efficient way	Key performance indicators and success criteria will be the result of initial preparation phase of the project			
<b>Activity A09: Digitising Social and Sports Services in the City of Rijeka (SmartSocSport)</b>	Transformation of the business process of granting social rights and digital integration of business subsystems of main actors in sports in Rijeka	Key performance indicators and success criteria will be defined after the initial phase of the project.			

*DIGITAL CITIES CHALLENGE – Digital Transformation Strategy*

Activity	Expected result	Monitoring indicator	Target	Timeframe	Means of verification
<b>Activity A10: e-Procurement</b>	Simplified and accelerated internal and external public procurement procedures	Key performance indicators and success criteria will be defined after the initial phase of the project.			
<b>Activity A11: Rijeka's CodeWeek 2019</b>	Promotion of computer programming skills	Number of events	3	1 year	Provided by organiser: City of Rijeka, Department of Education and Schooling
		Number of volunteers	10	1 year	
		Number of participants	50	1 year	

## Appendix III: Relevant Good practices

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### **Good Practice 1: Open data portal<sup>1</sup>**

The City of Rijeka has an Open Data portal that serves to collect, categorise and distribute the open data of the City of Rijeka, its utility companies and Institutions. Open data is published in a format that is computer-readable and open, meaning that the machine or computer can read and interpret it independently, regardless of the platform used.

The most frequently used data is from the Property Management Department of the City of Rijeka. The data provides clear insight into the list of available or leased properties owned by the City. It is linked with Google Maps so that users can visualise the location in addition to relevant information such as address, surface area, leaseholder's name, business activities performed, price, duration of the lease, ground plan for available properties for rent, etc. The list is updated daily.

### **Good Practice 2: Entrepreneurship grants<sup>2</sup>**

To relieve funding constraints and support the innovation ecosystem, the city of Rijeka has introduced public calls for applications to receive grants under the General Program of Measures to Promote Development of Entrepreneurship.

Applications are accessible via the city's e-Services portal and information service, where detailed information on specific measures, the filing process, as well as information on the required documentation are contained in the text.

Possibilities for online application facilitate accessibility to the general populace. Additionally, the handy tutorial for use of the provided Internet service ensures as wide reach as possible and a reduction in error related disqualification.<sup>3</sup>

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<sup>1</sup> <http://data.rijeka.hr/>

<sup>2</sup> <http://gov.rijeka.hr/zahtjevi-i-obrasci/poduzetnistvo/prijava-na-javni-poziv-subvencije-za-poduzetnike/566>

## Appendix IV: Bibliography

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## Appendix V: Stakeholders consulted

NAME	ORGANISATION
Andrej Poropat	President of The Rijeka City Council, entrepreneur
Anton Lucijanović	Director, Erste Bank
Barbara Olenik Staničić	Senior expert associate at Croatian Chamber Of Economy, County Chamber Rijeka
Boris Golob	CEO at STEP RI Science & Technology Park University of Rijeka
Boris Popović	CEO, Alarm automatika d.o.o
Damir Medved	Principal consultant – Ericsson Nikola Tesla
Danijel Antonić	IT Security Advisor, IT department, City of Rijeka
Danko Venturini	CEO, Ventex d.o.o.
Dario Dobrilović	Advisor, Department of Entrepreneurship, City of Rijeka
Diego Marot	Sales director – Istria, Rijeka and Lika regions, PBZ Bank
Emil Priskiċ	Deputy Mayor – City of Opatija
Gordana Nikolić	Dean, Business School PAR
Ivan Roje	Cloud Specialist at Microsoft
Ivan Šarar	Head of Department of Culture – city of Rijeka
Jadranko Novak	Owner, Nomen Software; university professor
Jana Sertiċ	Head of Department of Entrepreneurship, City of Rijeka
Krunoslav Ivanović	Micro entrepreneur, CEO at KRK sistemi d.o.o.
Marko Filipović	Deputy Mayor, City of Rijeka
Mile Pavlić	CEO, RIS Software d.o.o.; Professor at UniRi
Nataša Zrilić	Advisor to the Mayor for Economic Development, City of Rijeka
Nenad Lazarić	Head of IT Development, IT department, City of Rijeka
Nenad Seifert	Regional director, Croatian employers association (HUP)
Robert Maršanić	Head of planning & design – Rijeka Promet d.d.
Saša Ukić	CEO, 3t. Cable d.o.o.
Srđan Škunca	Head of City Department of Development, Urban Planning, Ecology and Land Management, City of Rijeka
Sven Maričić	Faculty of Medicine, Assist. Professor, Rector adviser for new technologies, Startup 3D technologies in biotech
Tatjana Perše	Head of eGovernment, IT department, City of Rijeka
Tina Raguzin	Senior Advisor for Development of Entrepreneurship, Department of Entrepreneurship, City of Rijeka
Vedran Kružić	Regional Development Agency of Primorje Goranska County
Vojko Obersnel	Mayor – City of Rijeka
Željko Jurić	Head of IT department, City of Rijeka
Zlatan Ćar	Professor at UniRi Technical faculty & informatics

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