Case Study

Jelgava City Municipality Operative Information Center (MOIC)

https://www.jelgava.lv/lv/iestades/jpoic/

September 2021

1. About IoTxChange

IoTXchange is an URBACT Action Planning Network with focus on the crucial role that Information Technologies and in particular Internet of Things (IoT) will inevitably play in urban development in the forthcoming years, and that alone makes it extremely relevant within the framework of Urban Strategies in Europe.

The IoTXchange partnership is built around a common interest to place IoT as a policy instrument for the sustainable development of small and medium-sized cities, capable of increasing the competitiveness of the local economy, promoting quality of life, sustainable environments, and the delivery of connected services to citizens and visitors.

The network is composed on 8 partners, of which 7 are small cities, with Fundão in Portugal as Lead Partner, teaming up with other six small cities (Ånge in Sweden, Dodoni in Greece, Jelgava Local Municipality in Latvia, Kežmarok in Slovakia, Nevers Agglomération in France and Razlog in Bulgaria) and one university (Åbo Akademi University in Vaasa, Finland).
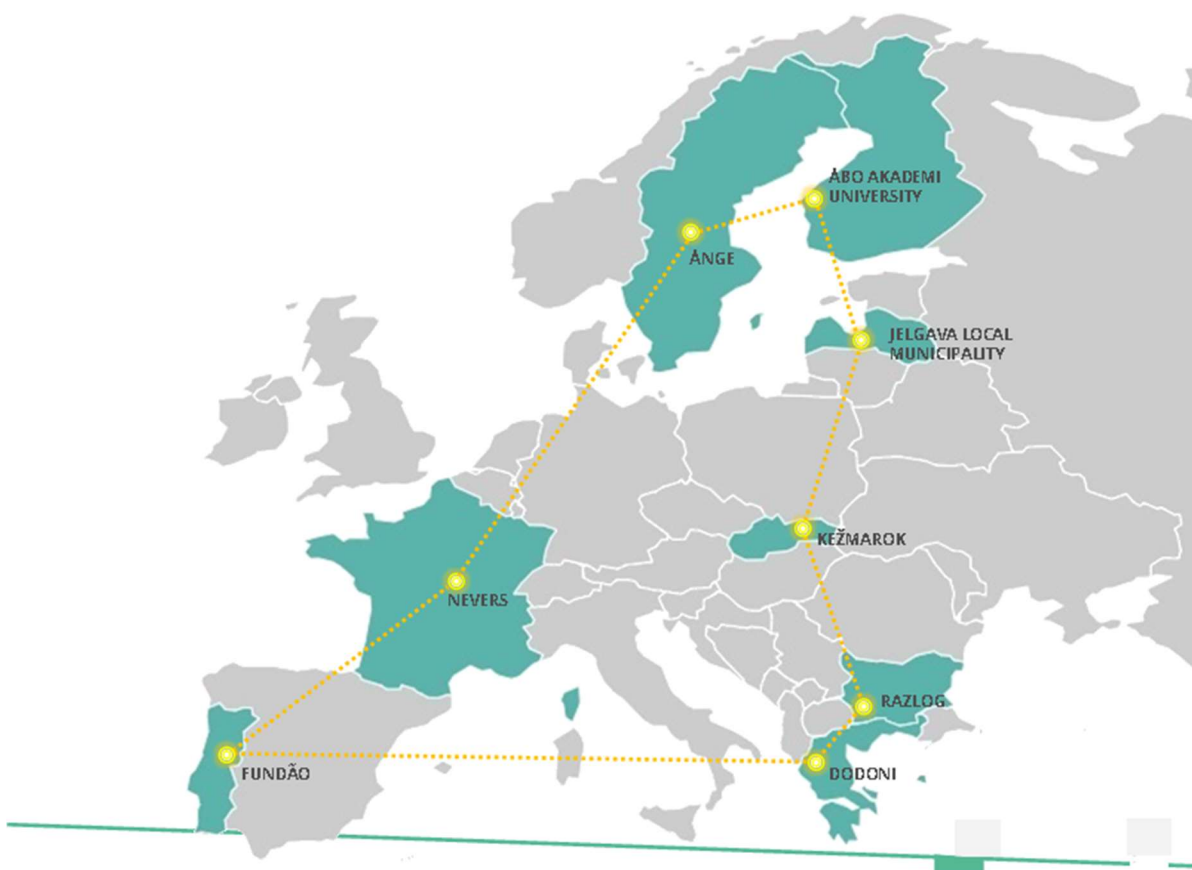
To know more about the project and how encourages the creation digitalization plans based on Internet of Things (IoT) solutions to increase the quality of life in small and medium sized EU cities, you can visit IoTXchange | URBACT.

2. Scope & Methodology

Jelgava City in Latvia is widely recognised in Baltic region as one of the North European leaders in the practical implementation of Smart City concepts. The city had set strategic objectives to provide inhabitants with stability and predictability of urban life, transparency of developments in infrastructure and educational processes, fostering high employment rate, cultural events, as well as economic growth and welfare. The Jelgava Smart City programs began with mobile citizen e-cards for transportation and social services for pensioners and school students, smart traffic flow management, lightning sensors, security cameras, energy efficiency, use of renewable energy resources and green transport, energy planning and data management.

One of the key city achievements included the establishment of **Municipality Operative Information Centre (MOIC)** in 2016 to monitor the city public area and critical infrastructure with the latest technology solutions (27/7 citizens contact centre, video surveillance system, GIS, energy monitoring, flood maps, road traffics accident map, drone images database, etc.)

After extensive experimentation with Smart City Monitor digital transformation technology platform during 2018-2019, the municipality decided to obtain the license for its implementation to support the ambitious city incentives in **AI and Big Data** - driven digital transformation. In 2017, the investment research department of the Financial Times, ranked Jelgava 6th among Europeans micro cities in the category "connectivity".

The **Methodology** to develop the case study was built in 3 steps:

-   Desk research of all the information developed until end of March by the project, in particular de Baseline Study;

-   Online interview to the project Lead Expert, Mr. Eurico Neves;

-   2 online meetings to Ms Anita Skutane, and Mr Gatis Kasparinskis , from Jelgava Local Municipality team:

    o   First meeting to collect information;

    o   Second meeting for finetuning the case study draft version.

3. Jelgava Municipality Operational Information Center (MOIC)

3.1 Background

The MOIC started its work on February 1, 2016, with the following functions:

- ❖ to ensure a coordinated flow of information between the institution and the population, state and local government institutions, enterprises, subjects of operational activities and owners or legal possessors of critical infrastructure, as well as the analysis thereof;
- ❖ to ensure the maintenance of the local government civil protection system;
- ❖ to supervise and manage critical infrastructure monitoring systems;
- ❖ to perform the input or processing of data provided by the maintainers of critical infrastructure.

The MOIC provides a free 24-hour support line for 8787 residents, giving residents the opportunity to report various types of events and situations in the urban environment. A comprehensive communication, information exchange and analysis mechanisms provide direct communication between Jelgava city residents, infrastructure managers, operational services, state and municipal institutions, commercial companies and the Civil Protection Commission.

The key technology applications include setting up the large network of air quality, environment, energy and transport infrastructure sensors and systems linked to LoRaWan and optical cable connectivity networks to collect big data and transform it into key
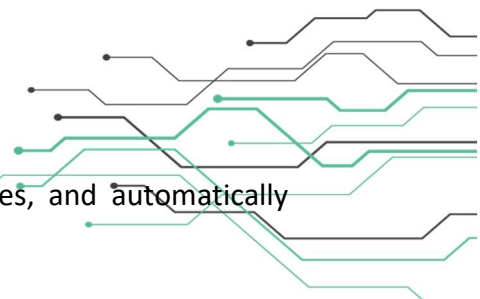
performance indicators for major urban infrastructure and processes, and automatically control their efficiency and use in real time.

The technology Smart City Monitor provides cutting-edge IoT integration platform to make and run the city Digital Twins which are capable to monitor automatically large number of urban processes in real time and assist administrations and citizens in Smart Sustainable and Transparent Management of their cities.

Relevant Data

In 2020, from 1 January to 31 December, 10.917 reports were received, of which 10.618 (97.26%) were related to the territory of Jelgava city, and 229 (2.16%) of reports were from the territory of Jelgava Local Municipality and 70 (0.64%) to Ozolnieki Local Municipality. The most active residents reported the condition of street and sidewalk pavement 1.345 (12.3%), missing and injured animals 1.120 (10.26%), street lighting 501 (4.59%). Information channels to communicate with the population: - Citizens' toll-free number 8787, Jelgava city interactive map (in WEB version - https://karte.jelgava.lv/reporting) and mobile application - "Jelgavaspilseta", was used by 797 residents; - Social network accounts were used 79 times to communicate with the Authority.

3.2 The Governance and funding

The MOIC Governance structure has the following tasks:

1. To ensure a unified flow of information on utilities, housing stock, improvement of the administrative territory, public order and sanitary cleanliness, state, municipal and sectoral critical infrastructure, etc. Coordinate information processing, i.e registration of information, transfer to cooperation partners for further action, obtaining information on cooperation partners' actions (work execution time schedules, actual work execution, situation solution, etc.), provision of information to its requester;

2. To co-operate and involve utility service providers, critical infrastructure managers, companies, etc. in the unified information circulation system;

3. To compile and analyse information;

4. Monitor and manage critical infrastructure monitoring systems, including digital input and processing of received data;

5. To perform an analysis of extraordinary events, to develop prevention measures and to prepare reports for the Joint Civil Protection Commission of Jelgava City, Jelgava Local Municipality and Ozolnieki Local Municipality (from 01.07.2021. as a result of national territorial reforma is merged with Jelgava Local Municipality);

6. To ensure the location of the municipal reserve data center;

7. Coordinate civil protection measures;

8. Participate in state civil protection activities;

9. In emergency situations, to collect and provide the necessary information, state and local government institutions, citizens, enterprises, subjects of operational activities and owners or legal possessors of critical infrastructure;

10. To identify early risks of disasters, accidents and injuries and to involve the population in measures to prevent these risks;

11. To co-operate with state and local government institutions, enterprises in order to create, maintain and develop the implementation of intelligent information and communication technology solutions (infrastructure, equipment or software development, testing) in the city of Jelgava;

12. To perform other activities for the implementation of the functions and tasks of the Authority.
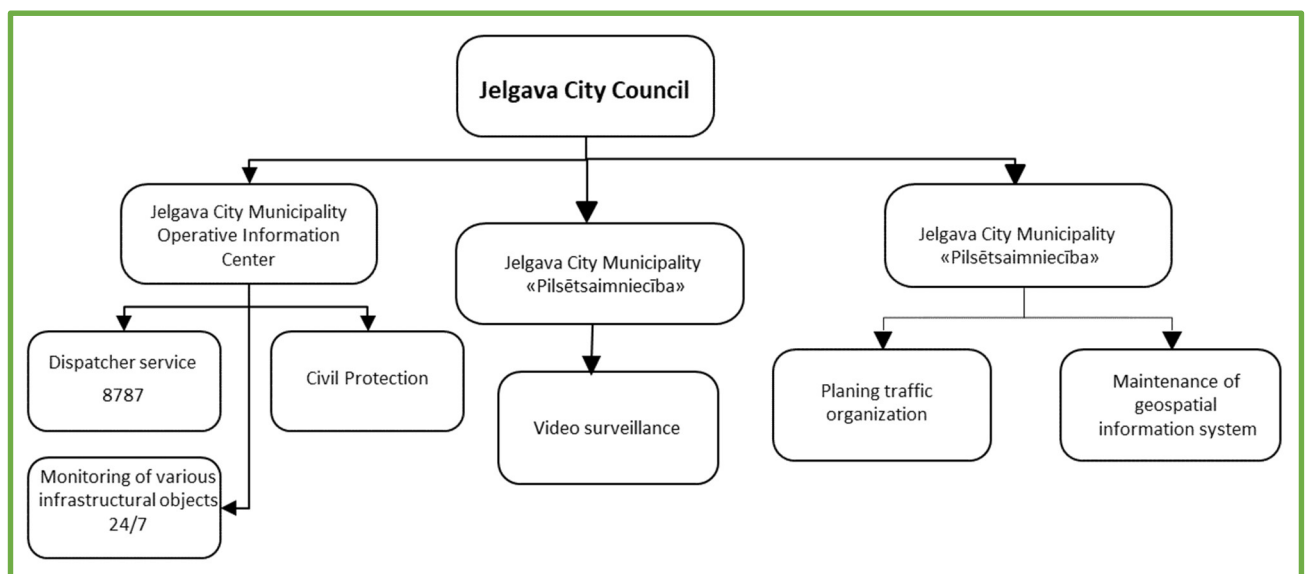
MOIC structure:

The structure scheme was approved on November 1, 2019. In 2020, the Head of the Institution, the Administrative Division, the Information Circulation and Analysis Division operated in the Institution, which ensures the operation of the Contact Center. At the end of 2020, the Authority had 15 posts on its establishment plan. At the end of the reporting period, the Authority had 10 men and 5 women. During the reporting period, the employees of the Institution supplemented their knowledge in various seminars and trainings: "How to communicate with impulsive clients", "Amendments to the Labor Law and current issues in labor law", "Changes in fire safety regulations", "Written communication".

14 employees, including dispatchers

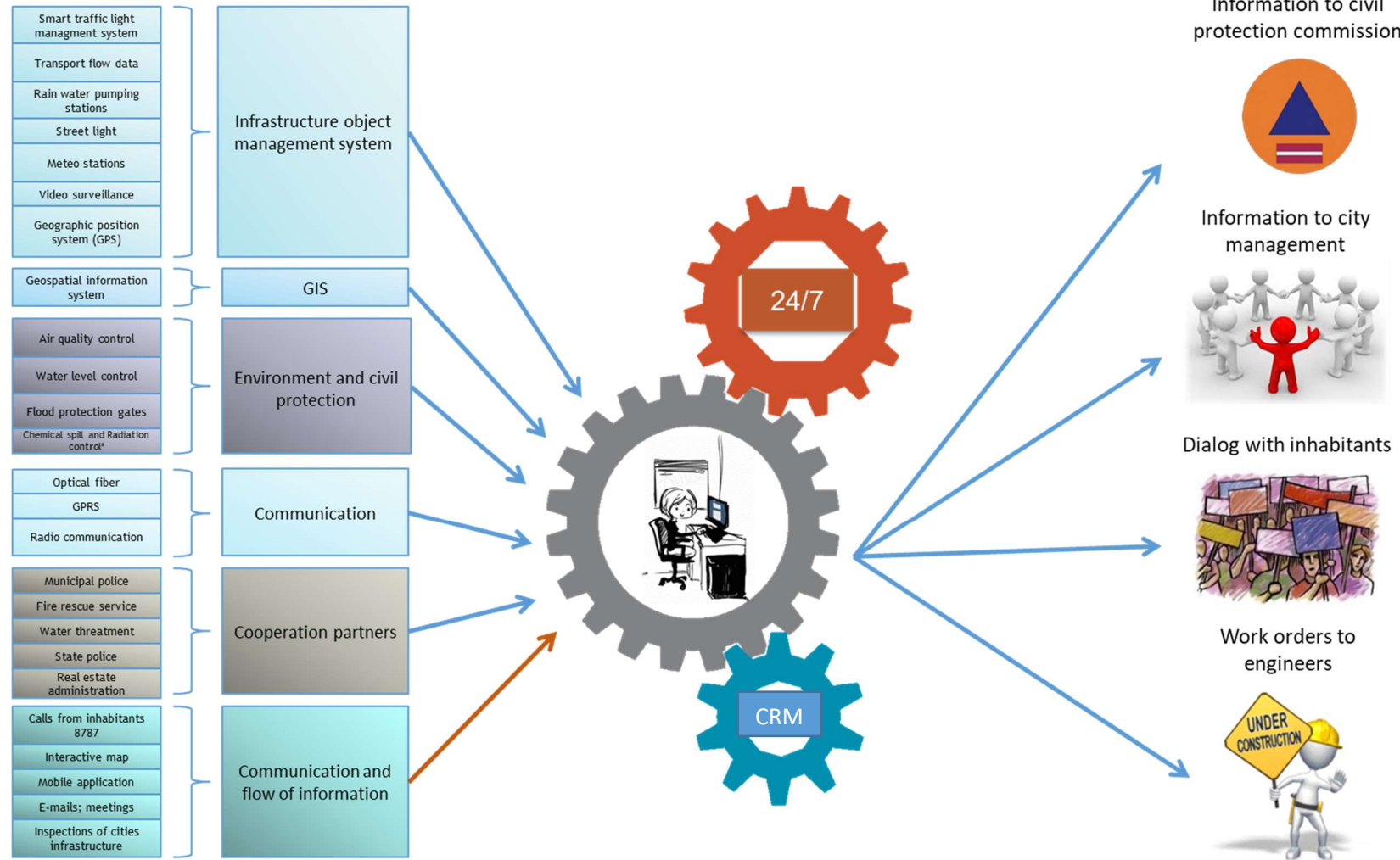Annual budget ~420 000 EUR/ per year

In 2020 a EUR 406,760 (grant from the municipality) has been approved for the operation of the institution and the performance of delegated functions. According to the approved budget and economic classification of expenditures, the cash flow of expenditures for 2020 is 364,914 euros, including: • remuneration 257 751 euros; • mission expenses 550 euros; • payment for services 62,764 euros; • purchase of materials and energy resources 9,121 euros; • capital expenditure 34,728 euros.

Search for Funding

In the period from 1 January 2020 to 31 December 2020, four Horizon 2020 research and innovation projects were prepared and submitted with international and local partners. One of which has been approved for implementation in the period from 2021 to 2025 with 100% funding in the amount of 261,186.00 EUR.

Infrastructure object management system
- Smart traffic light managment system
- Transport flow data
- Rain water pumping stations
- Street light
- Meteo stations
- Video surveillance
- Geographic position system (GPS)

GIS
- Geospatial information system

Environment and civil protection
- Air quality control
- Water level control
- Flood protection gates
- Chemical spill and Radiation control*

Communication
- Optical fiber
- GPRS
- Radio communication

Cooperation partners
- Municipal police
- Fire rescue service
- Water threatment
- State police
- Real estate administration

Communication and flow of information
- Calls from inhabitants 8787
- Interactive map
- Mobile application
- E-mails; meetings
- Inspections of cities infrastructure

24/7

CRM

- Information to civil protection commission
- Information to city management
- Dialog with inhabitants
- Work orders to engineers

UNDER CONSTRUCTION

❖ Municipality owned optical fiber network

❖ Interactive map/ application

❖ Monitoring of various infrastructural objects 24/7:

  ❖ Street light

  ❖ Intelligent traffic light

  ❖ Smart traffic control

  ❖ Meteorological stations

  ❖ Pumping stations

❖ 3D flood modelling

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❖ Active video surveillance

❖ Video Analytics

❖ Real Time Traffic Optimisation

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❖ Licence Plate Recognition

❖ Smart Parking
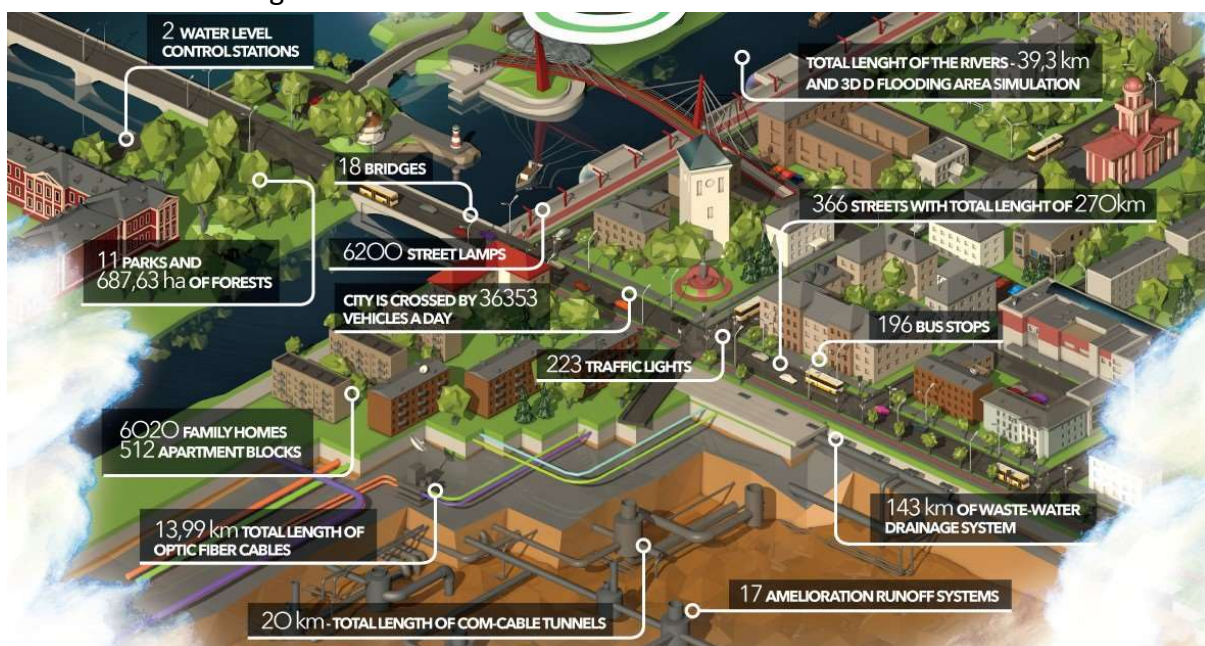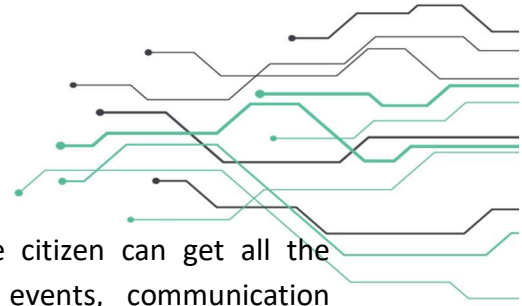
3.4 MOIC Communication

The website is an essential part of communication, where the citizen can get all the information about the activities of the Institution, current events, communication opportunities and other information that could be of interest to any interested party. In 2020, the Authority continued to be visited by those interested in getting to know the city of Jelgava as a good example of the use of smart technologies in the city's infrastructure.

Organized group visits took place in 2020. A total of 18 groups and 182 participants were admitted (including working groups of other local government institutions, the Saeima (Parliament) Commission for Defense, Internal Affairs and Prevention of Corruption, ambassadors of various countries were received within the tour organized by the Ministry of Defense, etc.).

In 2020, residents had the opportunity to apply for early notification, which allows registered residents to be informed. Obtaining up-to-date information on potential threats: notifications of floods, fires and other civil protection events, which is attributable to the endangered property belonging to them (in 2020, more than 40 residents of Jelgava city registered in the system). Communication of the institution with residents and cooperation partners takes place all the time using various communication channels - call, e-mail, interactive map "https://karte.jelgava.lv" mobile application "Jelgavaspilseta", monitoring systems, Police Radio, social networks "Facebook" (1193 followers) and Twitter (298 followers), Whatsapp.

3.5 MOIC work in progress

The Covid 19 pandemic push the city to continue to develop the digital transformation of various solutions, seeking the use of as many different IT systems as possible to remotely monitor or implement administrative processes. For example, digital cooperation between Jelgava City Municipality and a resident, implementing distance learning of municipal services and development of municipal services, creating significant potential for online solutions related to Jelgava residents' e-card, use of interactive card, etc.).

In the context of this forecast, it is important to use various data processing for public purposes, such as updated flood maps and measurement processing and analysis capabilities. With the development of technologies, their integrated (including IoT) solutions, the need for the introduction of smart and flexible automated processes will increase.
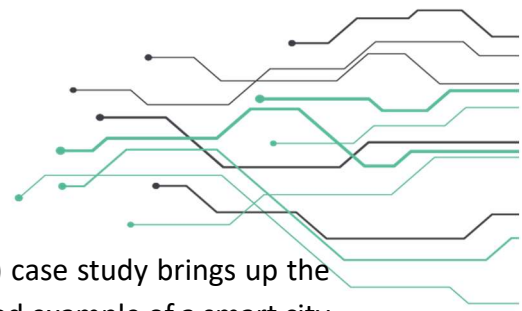
4. Transfer Potential

The Jelgava City Municipality Operative Information Center (MOIC) case study brings up the learnings of the city in digital transformation. The case study is a good example of a smart city strategy, where traditional networks and services are made more efficient with the use of digital solutions for the benefit of its inhabitants and business. The MOIC goes beyond the use of digital technologies for better resource use. It means smarter urban transport networks, upgraded water supply and waste disposal facilities and more efficient ways to light cities. It also means a more interactive and responsive city administration, safer public spaces and meeting the needs of an ageing population.

The transfer potential to other European cities is high and can follow the integrated "Explore-Shape-Deal" process, purposefully geared towards the knowledge exchange on, the capacity building support for and the development, implementation, replication and upscaling of Smart City solutions. It is organised in three phases building on each other:

❖ Explore – See and learn what's next: taking this case study as starting point but also engaging directly with the team of Jelgava to collect more information about which solutions and best practices have already been successfully implemented and creating ideas for own projects.

❖ Shape – Shape project and action plans: Once a vision for a project has been developed this phase helps to shape that idea into a solid bankable project, which is fit to attract public and private investors. This phase will also enable a structured dialogue between all key stakeholders involved.

❖ Deal – Create relations and opportunities: The third and last phase enables a one-to-one exchange between project promoters and members of the financing community to ultimately close deals and finance projects.

The transfer potential is also measured by the capacity of the cities to implement the practice. A set of possible questions should be considered, such as:

❖ Why my city need this kind of system?
❖ Is there political support for the transfer?
❖ Will sufficient resource be available for the transfer?
❖ Have the relevant stakeholders been identified?
❖ Are they aware of the project and do they support it?
❖ Is there a mechanism is place to coordinate the transfer at city level?
❖ Is there a clear a vision for the future of transfer?

Based on this assessment, cities will be better prepared to engage in a transfer process.

Acknowledgment

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