IoTXchange SSA News

TOP STORIES FROM SSA IMPLEMENTATION IN THE IoTXchange NETWORK

IoTXchange
CONNECTING CITIES FOR BETTER LIFE

JULY 2021 EDITION



How the Small-Scale Actions are contributing to define the future Integrated Action Plans of the network

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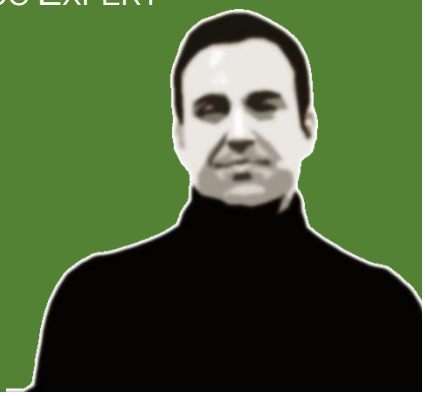
Editorial

MIGUEL SOUSA

AD-HOC EXPERT



The Power of Small-Scale Actions

Small-scale Actions (SSA) are a novelty within URBACT Action Planning Networks. SSAs should allow a city to test a new idea or a concept before adopting within their Integrated Action Plan IAP), for future upscaling. The small budget available will allow a city to try out ideas, learn lessons from the tests and upscale or adapt the actions to be included in the IAP. This can be particularly relevant in technology-oriented networks such as IoTXchange.

The IoTXchange network is about adoption of Internet of Things (IoT) Solutions in small and medium size cities in Europe, including several municipalities with relevant rural areas. Today there is a myriad of IoT technological solutions available in the market for an almost endless range of applications and is not easy for municipalities to choose what and where to invest. There is also a learning curve for city officers when it comes to technological solutions like IoT, both in procurement processes – learning about the available solutions, the market prices, the technical specifications – as in implementation processes, and especially in exploitation of the huge possibilities that IoT offers for improving public services and information to citizens.

For all these reasons, starting to test small before planning big is certainly a good idea, and IoTXchange partners were quick to embrace the possibilities open by the new Small-scale mechanism. In order to facilitate implementation, the proposal for Phase 2 of the network already included the support of an Ad-Hoc Expert to the SSA processes in the partner cities.

The network considered several options for the SSA implementation, including the possibility to pool the whole partnership' resources to carry out a single common horizontal experiment in all cities as an alternative to specific individual experiments in each city. But at the Transnational Network Meeting hosted by Nevers on October 2020, the partnership decided to go for the more conventional, and easy to implement, approach of small scale actions being defined specifically for each city. On the following meeting in December 2020, already with the participation of the Ad-Hoc expert, partners already discussed means of implementation and supported needed, and things started to move in all cities, with the discussion of the topics to be covered being moved to the URBACT Local Support Groups in each city.

As it is practice in URBACT, the decisions on the type and focus of the SSA within IoTXchange have been a participative process, in most cities the decision being taken after discussions and voting at ULG level, and with all 8 partners progressing at a similar pace in the definition and implementation of their SSAs.

From the definition of the SSAs, and in order that they can be indeed used as a test in the city for the feasibility and potential of promising ideas for the future, is is necessary to complete the testing most probably within the first 18 months of the network so that lessons can be included in the first draft IAP, which is due already in December. In IoT exchange most SSA implementation started in June – July and testing will extend until early December, so that some results can already be assessed and included in this first IAP draft.

The following pages present the news regarding this SSA implementation process in each of the IoTXchange City partners. You'll see that some are really well advanced, with equipment already in place, while others are concluding the procurement or negotiation processes in order to start testing quite soon. In all cases, and as expected from a technological process, the experiments are quite tangible and should produce sound results on the potential, feasibility, costs and impact on population of the tested measures, which will allow to plan their eventual upscaling within the IAP with much more confidence and detail.

As Ad-Hoc Expert for the network with the task to follow this SSA process, I will continue to monitor its developments, and will come back with more news towards the end of the year!

Åbo Akademy Infoflash

WINTER DRIVING IN FINLAND MADE SAFER THANKS TO IOT

This autumn, Åbo Akademi from Vaasa in cooperation with the city of Nykarleby in the Ostrobothnia region of Finland, will try out the latest IoT technology in monitoring of winter road conditions. Buses and taxis will be equipped with sensors that will measure the current road condition and contribute to safer driving conditions.



The pilot tests are part of a Small-Scale Action integrated in the IoTXchange URBACT project and will be conducted with local companies within the local transport sector. Sensors will be installed on buses, taxi cars and trucks during autumn 2021 in the Nykarleby area.

The sensors will measure the roads friction and provide real-time information about ice, water or dry tarmac on the road surface condition. This information can be later used by the City Services and companies in charge of the winter road maintenance, to monitor when it will be most needed to sand, and plow snow off the roads. The pilot tests will occur during the autumn 2021 and winter 2022. After the test period the system will be evaluated by Åbo Akademi and Nykarleby, having in view a possible upscale as part of the Integrated Action Plan that Åbo Akademi will develop with the city of Nykarleby.

An important part of the project is to investigate how well the IoT technology works with the end users' needs. It's always important when dealing with new technology to evaluate how well it functions for the users, e.g. will the bus driver have the relevant information about the current roads conditions and will the company in charge of maintaining the roads get the relevant information where he needs to sand the roads.

Facts and figures:

Solution: Winter Road condition monitoring using IoT technology

Vendor: Road Cloud, Finland

Budget: 10.000€

Procurement process: Direct negotiation procedure

Timeframe: September 2021– February 2022

Contact person at Project Partner: Sören Andersson, soren.andersson@abo.fi

The questions we are looking forward to answer with this experiment are, first: will the system give relevant information to the municipality? Second, will the information benefit the maintenance work? And third, and most important, can it save money and increase road safety?

Kimmo Rautanen, Project Manager at Åbo Akademy

Afraid is too cold to go for a bath in Sweden? Thanks to URBACT Small-Scale Action, knowing the local lakes' bathing temperature in real time is now possible in Ånge!

From June 1st, you will be able to check the water temperature before going to the beach! Ånge municipality is presenting smart bathing temperature sensors for measuring the municipalities most visited lakes.



The project, which is a collaboration with the local fiber network company ServaNet, is a part of a small-scale action (SSA) included in the workplan of the URBACT IoTXchange network, where two different IoT platforms are being tested for 6 months with the same data.

The focus on the SSA was decided within the project's Local Support Group. Some ideas had been prepared in advance by the project team, but new ideas from ULG members were also allowed and discussed during the meeting. The final vote (using *mentimeter*) resulted in using the SSA to look into a common IoT platform for the Municipality. This was followed by contact with some suppliers and with support from Servanet as communication provider. Finally, the ideas to focus on lakes' water temperature as information for bathers was taken, as lakes are one of the main tourist attractions of the area in the summer time, when the experiment is to take place.

Implementation started in June, and so far, two sensor equipped buoys are placed at the municipalities' most visited lakes and the data is visualized on the Municipality homepage: Badplatser - Ånge kommun (ange.se).

Should the experiment be a success, we'll certainly consider it within the ULG, possibly for a larger number of equipment and sites.

Facts and figures:

Solution: A project for *measuring bathing temperatures with smart sensors*, which is a part of a POC where two different IoT platforms are being tested.

Vendor: ServaNet and Ambiductor

Budget: 7.000€

Procurement process: Direct negotiation procedure

Timeframe: June 1st to November 1st 2021

Contact person at city hall: Petra Malmberg, IT manager, petra.malmberg@ange.se

We hope that this project will be of use to our citizens and that it will increase our knowledge and competence about working with an IoT-platform

Petra Malmberg, project manager

The Dodoni Newsmail

There's no way you can miss Dodoni's famous sanctuary and theatre with this new app!

Municipality of Dodoni is developing a prototype smartphone application that will help tourists in their visit to the sights of our region. The app will be available to download by the municipality's web site and will be tested for a 4-month period.



The theater of Dodoni is one of the largest and best preserved ancient Greek theaters, with a capacity of about 18,000 people. It was an integral part of the sanctuary of Dodoni and for the visitor, arriving from the south, it was the most visible monument, which dominated the area with its curved surfaces and imposing retaining walls. It was built in the 3rd BC. century, within the framework of the ambitious building program carried out by Pyrrhus, king of Epirus, in order to renovate the pan-Hellenic sanctuary and give it a monumental character. Also in our Municipality there are scattered Byzantine monasteries of exceptional historical interest and places of natural beauty.

Now, within the context of the URBACT IoTXchange project, a small-scale action is being tested with the goal to produce a prototype app and measure the impact of it to the traffic of the tourist in our area.

During the experiment, which it will last for 4 months in summertime, the app will be available through the municipality web site and will be presented to the tourists with the help of hotels in our region. If the test is successful, it will be included in the Integrated Action Plan to be developed in a complete stage in combination with additional interventions in this direction.

Facts and figures:

Solution: IoT Technology to promote tourist attractions in Dodoni Municipality.

Vendor: Not yet defined

Budget: 10.000€

Procurement process: Direct negotiation procedure

Timeframe: August to November 2021

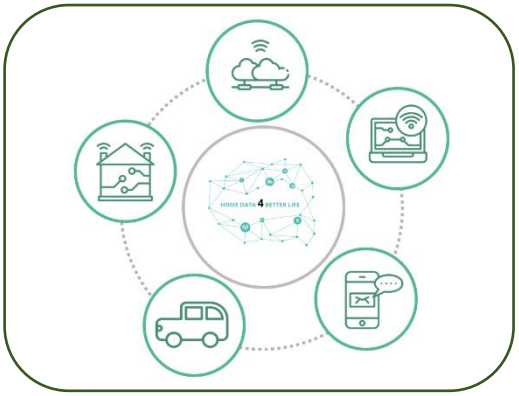
Contact person at city hall: Papadimitriou Spyros, IT Department, support@dodoni.gr

A mobile application could pique the interest and help over 16,000 tourists who visit the sanctuary of Dodoni every year to discover more of the attractions in our area

Spyros Papadimitriou, IT Department

THE ALWAYS INNOVATIVE CITY OF FUNDÃO IS NOW EXPERIMENTING WITH HOMEDATE FOR BETTER LIFE

The Municipality of Fundão together with the University of Beira Interior is developing a prototype to measure temperature, humidity, and carbon dioxide, using IoT technology. The device will be applied in 20 pilot houses located in remote areas and aims to prevent domestic accidents.



The Home Data 4 Better Life pilot idea arises from a project submitted in 2020 together with the University of Beira Interior, which aimed to monitor peoples' biometric data. However, to fit better in the IoTXchange project framework and as a Small-Scale Action (SSA) limited experiment, it was decided to monitor temperature, humidity, and carbon dioxide instead, using IoT technology.

The device developed by the Informatic Department students at the University of Beira Interior will be applied in 20 pilot houses located in remote and rural areas and aims to prevent domestic accidents. The University of Beira Interior oversees development of the monitoring system, implementing the system in real houses and give technical assistance during the pilot. The devices will start to be placed in the houses in the beginning of July and will collect data until the end of October. In addition, as a result of the project, a cloud infrastructure may also be created to which other sensors can easily be added and which will be able to support other future actions.

Facts and figures:

Solution: IoT technology to measure temperature, humidity, and carbon dioxide in houses located in remote areas.

Vendor: University of Beira Interior

Budget: 10.000€

Procurement process: Direct negotiation procedure

Timeframe: July to October 2021

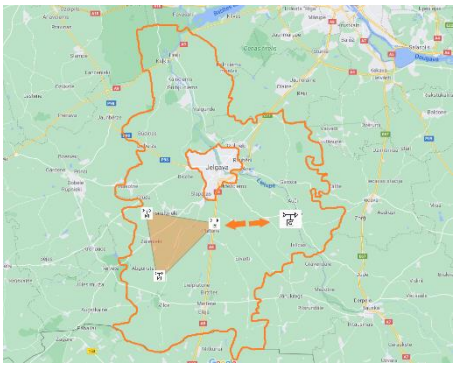
Contact person at city hall: Michaela Gil, Innovation and Investment Department, mgil.cmfundao@gmail.com

At the end of the pilot, in addition to (almost) real-time monitoring that can signal possible accident scenarios, the Municipality will be able to have precious data for decision-making at the governance level

Michaela Gil, Innovation and Investment Department

TILLING THE LAND FOR THE FUTURE: JELGAVA LOCAL MUNICIPALITY STARTS PILOT INTERNET OF THINGS PROJECT IN RURAL AREAS

Jelgava Local Municipality starts using Internet of Things sensor technology from July onwards to measure local meteo & environmental data.



During the Urbact Local Group's meetings and focus group interviews for the selection of a Small-Scale Action (SSA) under the project "Internet of Things as policy instrument for the city change", the Jelgava Local Municipality came to a decision to boost district level meteo data monitoring for the purpose of data importance, validation with farmers, stakeholders and proper visualization to its inhabitants.

There will be 4 stations located at the central part of Municipality at farm premises with joint IoT tech connection, 3 out of 4 will transfer raw data, where station No.4 will catch and analyze possible slips from the Latvian Environment, Geology & Meteorology Centre (LVĢMC) certified meteo station, which allows to validate data match with official state measurements. 5 different data flows are selected – air temperature, soil humidity, rainfall, wind speed and wind direction. All sensors will gather data at 2 and 10 m high levels, which is considered as proof of concept for the data validation of wind ground speed and direction from the perspective of different heights - as this is important for farm management of plant protection if they want to continue to use 2 m high sensor data comparing to official limitation of min of 10 m.

While the first conclusions about the experiment will be extracted already in December 2021, allowing to take conclusions regarding its inclusion in the draft IAP, the plan is to integrate 24h meteo data on-site visualization at the Municipality official website to inform society about the present weather conditions between July 2021 – July, 2022 and further on if the pilot project will be evaluated as success – to continue to add more stations on the map and even transfer data to LVĢMC in order to get more precise meteo information in future.

Facts and figures:

Solution: Meteo and environmental data monitoring and validation

Vendor: LTD LATVIJAS MOBILAIS TELEFONS

Budget: up to 10.000€

Procurement process: market research

Timeframe: July 2021 to July 2022

Contact person at city hall: Anita Škutāne, Project manager, anita.skutane@jelgavasnovads.lv

Pilot findings may provide valuable info for us, as a Municipality, and other local and national stakeholders

Ilze Vītola, Jelgava Local Municipality Vice-Chair

DEALING WITH WASTE MANAGEMENT IN KEŽMAROK, THE HIGH-TECH WAY

Starting from June, the city of Kežmarok has been implementing 22 ultrasonic sensors in collection containers in a part of the city with a large population, which will provide data on the percentage of filling, location, type of waste, temperature, route planning to the collection point operator.



The issue of waste management persists for a long time and the need for an effective solution is very much needed. One option is the waste container filling sensors, which provide complete information in real time. The possibility to experiment a Small-Scale Action within the context of the URBACT network IoTXchange, of which the city of Kežmarok is a partner, offered the ideal opportunity to test this solution in a limited area, having in view a possible upgrade to the whole city, as part of the future Integrated Action Plan that will result from the project. The information provided in this experiment will be used for more efficient waste collection, thus contributing to the saving of operating and personnel costs.

JRK Slovensko s.r.o. won the public procurement organized by the city for the SSA. The type of procurement process was a closed one, and three companies providing the subject of the contract were contacted. The winning bid was with the lowest bid. The time frame for the use of sensors is set at six months - July to December. The expected results are a reduction in personnel and operating costs, an increase in the efficiency of waste collection, and an overview of information and data. In case of positive results, it is possible to apply the solution in all parts of the city of Kežmarok and thus achieve an overall smart solution for waste management.

Facts and figures:

Solution: Ultrasonic waste container filling sensors + real-time data display system

Vendor: JRK Slovensko s.r.o

Budget: 9999,9 €

Procurement process: restricted call

Timeframe: July to December 2021

Contact person at city hall: Mgr. Dávid Cintula, Project manager, david.cintula@kezmarok.sk

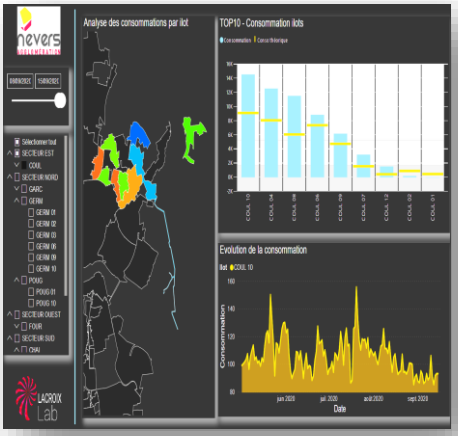
We expect results in terms of reduction in personnel and operating costs, an increase in the efficiency of waste collection, and an overview of information and data

David Cintula, project manager

Le Nevers Agglo

NEVERS AGGLOMÉRATION TO START USING BRAND NEW TAILOR MADE INTUITIVE ANALYTICS DASHBOARDS TO BETTER MANAGE THE WATER NETWORK AND SUPPLY WITHIN ITS REGION

The dashboards will include a global overview of the water efficiency, aiming at comparing real vs theorical water consumptions, and allowing to identify areas with abnormal water consumptions.



The Water Utility team at Nevers Agglomération is in charge of managing the drinking water distribution for 11 of the 13 towns of Nevers Agglomeration, and supervising a telemetry network which controls and monitors 4 treatment plants, 14 water tanks, 400 km of water pipes, 1.4 million m3 produced per year. Their objective: to deliver the best quality of service to +12 500 consumers. In order to achieve this, the Water Utility team invested in a premium telemetry solution to control & monitor the entire drinking water network, with 22 cyber-secured Remote Units controlling all strategic sites, and 66 data loggers to monitor critical points such as daily volumes, and min, max, average & night flow rates. As in all telemetry networks, their system centralizes all the data coming from the field, process it and display all their KPIs in several mimics. A system such as the one in use is relevant to manage in real-time a water network but cannot always address all data analytics use cases. This opened an opportunity for a new experimental enhancement using the Small-Scale Action line of the IoTXchange network. For this, and following a cooperation initiated for the SIIVIM 2020, the water utility team asked the company LACROIX to develop and industrialize intuitive analytics dashboards able to correlate data coming from their telemetry network & GIS application, and bring advanced visualization. The objective? To inject their expertise into an Analytics application, to better understand the water network, ant to predict leakages and reduce Non Revenue Water.

Facts and figures:

Solution: Intuitive analytics dashboards to better manage the water network and supply

Vendor: LACROIX SOFREL

Budget: 10,000 €

Procurement process: "innovation contract"

Timeframe: contract signed on May, 19th, for 3 months

Contact persons: Dominique DERANGERE, Head of the water department, dderangere@agglo-nevers.fr, Fabrice PACCAMICCIO, Water telemetry team manager, fpaccamiccio@agglo-nevers.fr; Elise GERVAIS, URBACT coordinator, egervais@agglo-nevers.fr

This experiment will be one the first stones towards the future bigger IoT platform project that will be the core of our IAP, as highlighted in our different ULG meetings. The objective of it being to gather data from different IoTs, thus allowing to have a global analysis from these, which could then be used as policy instrument

Elise GERVAIS, URBACT coordinator

THERE'S A NEW SENSE OF TECHNOLOGY PROGRESS IN THE AIR IN RAZLOG – AND IT'S ALL THANKS TO URBACT

The City of RAZLOG makes possible the monitoring of urban air quality in real time through the test installation of an Air Station with sensing key for air quality indicators along with environmental data. This is possible thanks to the IoTXchange project which is implemented under URBACT Program.



The Municipality of Razlog is a partner in the URBACT network "IoTXchange" and was amongst the first to use the possibility opened by the project of experimenting new urban solutions through a Small-Scale Action (SSA), having in view it possible later upscaling as part of an Integrated Action Plan for the city. After consultation with its Local Support Group (ULG), which members come up with the idea, the cith adopted the topic of Real-time Air monitoring for its SSA, since one main problems faced in the city is the air pollution through the winter season (8 months) which came from residential heating with wood and coal.

The solution that will be tested is to use is Urban Air Quality Monitoring technology. A tender procurement was opened and 3 offers were collected, after which a contract between Municipality of Razlog and Telelink Business Services EAD was signed on April 22nd 2021. On June 21st 2021 the monitoring station was installed in Razlog. The test period will be 6 months.

The main result to be achieved is to rise the awareness of local people about the air quality and the reasons for air pollution in the territory of Razlog Municipality, and to improve the quality of life on the territory of municipality of Razlog by harnessing IoT technology to advance the access to clean air and to make air quality manage able by data-driven decisions.

Facts and figures:

Solution: Urban Air Quality Air Monitoring

Vendor: Telelink Business Services EAD

Budget: 9833,18 €

Procurement process: Restricted tender

Timeframe: contract signed on April, 22nd , for 6 months

Contact persons: Zlatka Stoycheva, Head of European project Department, zlati_stoicheva@abv.bg

With this experiment, in addition to try new technological approaches for improved urban services, we also expect to to rise the awareness of local people about the air quality and the reasons for air pollution in the territory of Razlog Municipality

Zlatka Stoycheva, Head of European project Department