



The role of smart cities in meeting objectives of the Green Deal

Session at INSPIRE 2020

Event Report (04/06/2020)

Overview

The webinar on ‘The role of smart cities in meeting objectives of the Green Deal’ took place on 04/06/2020 in the context of the INSPIRE 2020 virtual conference and welcomed over 120 participants from public administrations, SMEs, academia and Digital Innovation Hubs. Aimed at highlighting the role of geospatial data at local level for pursuing Green Deal objectives of cities and communities, the session presented inspiring use cases in traffic management, smart mobility, air quality, energy efficiency and others. The session also allowed to outline the Commission’s ambition to create a common European smart communities’ dataspace and invited presenters to highlight what particular functions such a dataspace should have in order to address the challenges they have encountered in their activities. Data quality, curation and maintenance as well as interoperability and standardized interfaces were mentioned, along with the need for training, consulting and guidance to cities on how to re-use data as well as how to interpret GDPR. It was also recognised that a smart communities’ dataspace would improve the situation with regard to cities’ access to privately held data with public interest and that interoperable platforms for managing the data would be essential for its success.

Multiple-choice poll (Multiple answers)



What type of organisation are you from?

051

Regional or national administration

37 %

Municipality / city administration / associations representing cities and communities

8 %

Digital Innovation Hub, Living Lab, city lab, policy lab, etc.

12 %

Small and Medium Size Enterprise (SME)

27 %

Academia

18 %

The role of smart cities in meeting objectives of the Green Deal (04/06/2020)

https://inspire.ec.europa.eu/sites/default/files/the_role_of_smart_cities_in_meeting_objectives_of_the_green_deal.pdf

within the INSPIRE virtual conference:

<https://inspire.ec.europa.eu/conference2020/virtualprog>

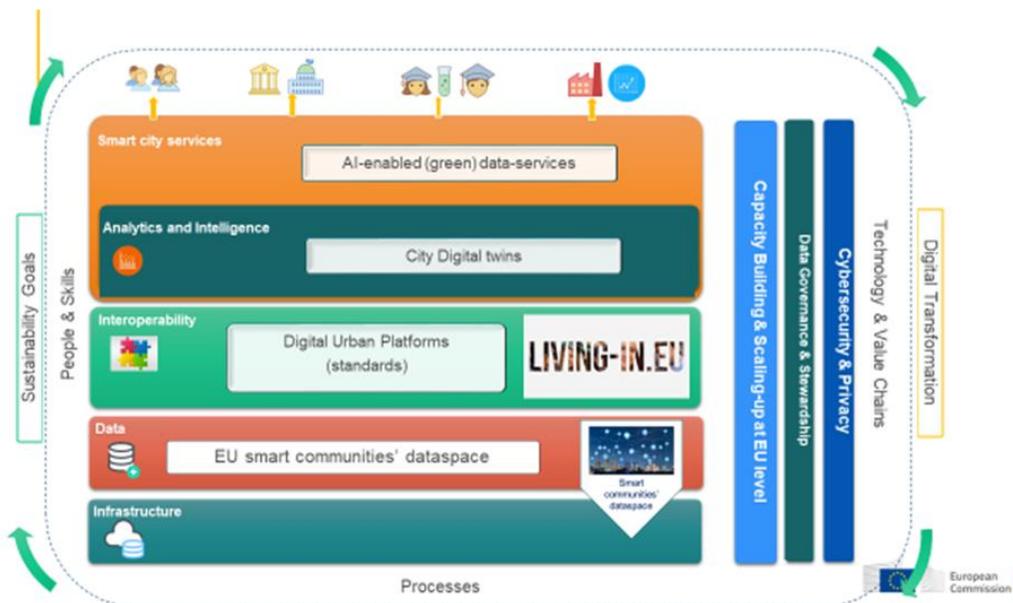
Welcome & Policy context

The role of smart cities in meeting objectives of the Green Deal, Policy Context - Andrea Halmos, European Commission, DG CONNECT, H5 Smart mobility & Living

The Sustainable Development Goals (SDGs) present an opportunity for cities to adopt an integrated strategy for sustainable development; it allows for mainstreaming sustainability. Digital technologies and the power of data have a huge potential for improving sustainability and achieving these goals. Following the Green Deal's objectives, the Commission will refocus the European Semester process of macroeconomic coordination to integrate the UN's SDGs. The EU's Recovery Plan also confirms the ambition to come out of the crisis, pursuing a 'twin digital and green transition'. Smart cities could be at the forefront of these efforts.

According to a recent survey, two of the greatest challenges cities face when trying to become smart and sustainable relate to capacity (e.g. competences, resources) and data (e.g. access, reuse). The Commission will support cities to unlock the full benefits of the digital transformation and embrace the ecological transition, by helping to set up an urban digital ecosystem, including data, interoperable platforms as well as Artificial Intelligence (AI) powered insights making and data services.

Cities need to have access to locally relevant, cross-sectoral (environment, climate, mobility, energy, waste, resilience, etc.) data, relevant datasets from the High Value Datasets, INSPIRE, Geographic Information Systems (GIS) data, but also data generated by satellites, citizens, companies, machines, behavioural data and others¹. In addition, the Commission aims to create a common European smart communities' dataspace, to help cities and communities share large pools of data in priority areas, between cities, stakeholders and across borders. However, there are many questions regarding the priority data sets, data governance, functions and other elements, which will be clarified in during the actual creation of the dataspace.



¹ COM(2020) 66 final

Geospatial data for smart city application – Francesco Pignatelli, European Commission, JRC

The European Location Interoperability Solutions for E-Government (ELISE) is the result of joint efforts and work in the Joint Research Centre (JRC) of the European Commission. ELISE supports the innovation ecosystem through location interoperability. The on-going ELISE Action, part of the Interoperability Solution for Public Administration (ISA2) programme, supports innovation through location interoperability framework, studies and applications. The actions aims to re-use the INSPIRE principles for harmonising data sharing conditions for location-related data. Geospatial and location data are an important smart city enabler, in areas such as transport / mobility, geographical names, buildings, land use, natural risk zones, etc.

ELISE has carried out studies on key topics related to location enabled digital transformation (e.g. Assessment of economic opportunities and barriers related to geospatial data in the context of the Digital Single Market) and surveys on the European state of play. The action has contributed to improving skills (through webinars and trainings) and deploying solutions (e.g. use cases on the ELISE applications in the Energy Efficiency domain).

Going forward, the spatial data infrastructure (SDI) needs to align with data ecosystems and forthcoming dataspace, in order to better integrate and manage spatial and non-spatial data. This requires increased collaboration; involving users and partners in all SDI related governance and incorporating citizen and business generated data. This is expected to lead to greater and scalable innovation, including those using new technologies, both the cities and for the individual sectors therein. The geospatial data is relevant element of the planned Common European Data Spaces and it is going to be integrated into them, using an appropriate data framework, built on standards, simplified data access (simplified metadata, open data, common licensing, IoT, event stream processing, APIs, micro-services) and simplified interoperability models.



ELISE: European Location Interoperability Solutions for e-Government

Get started: ELISE Action page: https://ec.europa.eu/isa2/actions/improving-cross-border-exchange-location-information_en

Join and collaborate: ELISE Community: <https://joinup.ec.europa.eu/collection/elise-european-location-interoperability-solutions-e-government>

Panel Discussion

Towards a smart communities' dataspace, Martin Brynskov, Open & Agile Smart Cities (OASC)

Open & Agile Smart Cities (OASC) is a non-profit, international smart city network that has the goal of creating and shaping the nascent global smart city data and services market. Smart cities face several

dilemmas (e.g. lack of trust and lack of scale, the social, economic, and environmental crises, etc.), innovation can however, help them be more protected and resilient. OASC aims to engage in building the smart communities' dataspace and the use of INSPIRE data will be part of this innovation process. Building a smart communities' dataspace will require collaboration between numerous stakeholders. Although not an easy task, interoperability could be an appropriate means to facilitate connection and collaboration. The recently finished [Synchronicity](#) Large Scale Pilot (H2020) aimed at delivering a model for standard-based innovation and procurement of IoT- and AI-enabled local services across domains. Through real-life pilots, the project has successfully validated the Minimal Interoperability Mechanisms (MIMs), which can help in this collaboration. At the heart of the pilots are Urban Digital Platforms that facilitate the cross-city and cross-sectoral data flows. The '[Guide to SynchroniCity](#)' is a practical guidance, addressing the questions of tech providers and helping cities and communities to create a thriving ecosystem. The Living-in.eu Declaration is a new possibility to establish a common network, platform where the cities can work together on scaling up successful solutions and progress with their digital transformation a European way. The consolidated technical report (annex to the Declaration at <https://living-in.eu>) is a working document and it contains e.g. concrete but focused set of specifications.

Creating data space for communities can build on a number of existing assets: validated mechanisms and data spaces as well as a trusted roadmap (not just technical, but also governance). What is however, still needed is the wide-scale deployment of (minimally) interoperable platforms and services and the uptake and convergence on both sides of the market. To support this process the following actions are required: (i) raising awareness, facilitating ecosystems locally and nationally; (ii) mentoring, building capacity, testing and implementing; and (iii) focusing on usefulness, agility, simplicity and trust.

Data space(s) for Communities

- We have:
 - validated mechanisms and data spaces (and well-understood challenges)
 - a trusted roadmap (not just technical, also governance)
- We need:
 - wide deployment of (minimally) interoperable platforms and services
 - uptake and convergence on both sides of the market
- How to get there:
 - raise awareness, facilitate ecosystems locally and nationally
 - mentor, build capacity, test and implement
 - focus on usefulness, agility, simplicity and trust

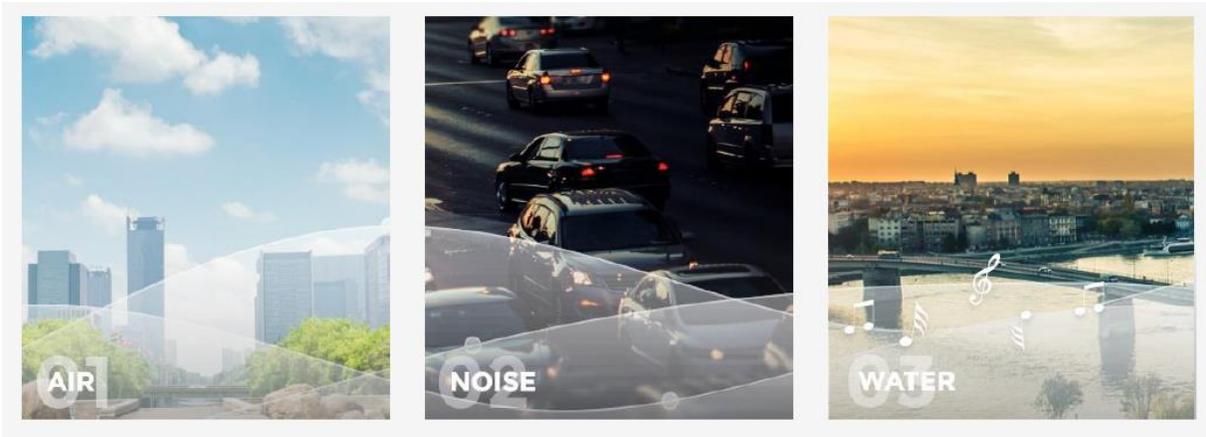


IoT and AI powered urban digital services, Srdjan Krčo, Novi Sad in the SynchroniCity project

Today, data, cloud and visualizations are basic elements of the everyday life and impact domains such as agriculture, manufacturing or the smart cities. Smart indoor and outdoor environmental monitoring (of air, noise and water) started about ten years ago; nowadays they are fundamental parts of the smart planning and living progress. Due to the recent developments, today low cost solutions are available all across Europe and experiences are easily accessible. This is also helping to improve the solutions further

and they are becoming part of high-level policies and of everyday life. An interesting example presented was the Common Air Quality Index (CAQI), which created a musical visualization mirroring the air quality. Different melodies were automatically created/played to reflect the emotions caused by different CAQI levels. This exercise can be adapted to reflect the local culture and tradition. For example, the weather forecast is using it to create a better understanding for the general population.

In the past, IT solutions were typically designed to address a specific challenge or community's need, which made it difficult to replicate and adapt to other cities (e.g. different procurements, new procedures). The SynchroniCity Large Scale Pilot has made it easier, by involving citizens, governance for better decision-making, and real time feedback. The SynchroniCity framework also supported the efforts to standardize and with MIMs, information and knowledge exchange has become easier. In Serbia, Novi Sad and Subotica are using the MIMs already, resulting in benefits such as speeding up procurement and deployment, opening up new digital market and improving citizen engagement. Joining the network can provide (i) an open platform, capable of interacting with any type of IoT device; (ii) standardized data formats and interfaces; (iii) Integration of legacy applications; and (iv) data from multiple sources in one place, powerful data analytics/AI for city-level improvements.

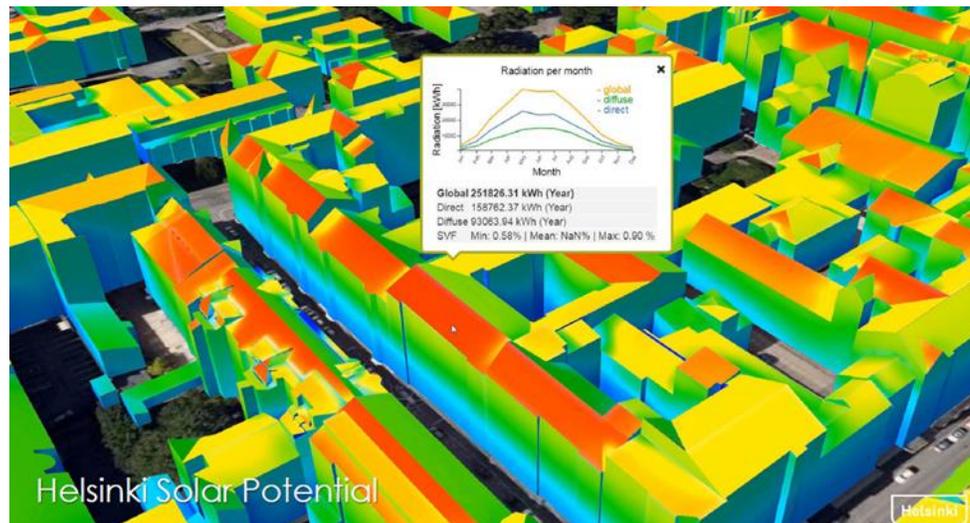


Helsinki Digital Twin, Jarmo Suomisto, Helsinki 3D+

Helsinki 3D+, is helping to create a better life for citizens using knowledge-based discussions and making decisions based on that data. This project is essential part of the administration of the City of Helsinki. The 3D representation of the city is helping to improve Helsinki's internal services and processes, promote smart city development, and share city models, as open data is available to citizens and companies for use, research and development. The project is using lots of data and technologies to provide the best solution and benefits to the citizens, companies and the different sectors.

Helsinki 3D+ is the foundation to its digital twin, with both a reality mesh and semantic models of the entire city. With Helsinki's open data policy, Helsinki 3D+ benefits many use cases and is available on all levels of Helsinki's ecosystem, including e.g. analysing solar power utilization, supporting carbon neutrality, conducting flood assessments, or defining strategy goals. Furthermore, this open innovation system aims to inspire the various actors (universities, developers, citizens) to innovate, use data for additional projects, share the experiences and maybe reuse them. Some examples are: Helsinki Energy and Climate Atlas; Helsinki Solar Potential (e.g. to calculate how great the utilization of sunshine could

be if the citizens would use solar panel for it); Wind Flow Analysis (e.g. wind flow optimisation during the planning phase of higher buildings); and What if... analysis e.g. in case of flood. During the project, they have identified six challenges regarding 3D data as a platform: (i) Consistency between models, (ii) Standardization, (iii) Data quality, (iv) Data Interoperability, (v) Data maintenance/governance, and (vi) how to move from utopian pilots to real-world use cases.



Transforming urban transport, Akrivi Kiouisi, Transforming Transport project

Transforming Transport is an EU-funded project that is part of the Horizon 2020 Big Data Value Lighthouse projects, aiming to find a more efficient and more sustainable transport paradigm. The project is currently in its evaluation phase. The Transforming Transport project has helped to identify challenges and concrete policy recommendations based on its experience.

Recommendations concerning data include a more streamlined implementation and better understanding of the General Data Protection Regulation (GDPR). It is important that GDPR can foster and not impede the data economy. Pilots came across fragmented policies regarding GDPR across Europe, which hindered data sharing and required specific methodologies to implement, delaying the pilots' real goal. Member States should be supported in similar adaption of GDPR, allowing national and regional authorities to be at the forefront of interpreting complicated issues such as: (i) who owns the data, (ii) which data are personal. Other policy recommendations were on the issue of interaction and collaboration.

Regarding data Interoperability to foster collaboration, pilots have requested to have more guidance or definition on how data should be stored / used, clarity on data integrity issue (data reliability and quality) and have recommended more standardization. With regard to the High Value Datasets, pilots have recommended more clarity on the 'Open Data Landscape' (e.g. understanding of what is open and big data, the value of open and big data) and 'enhancing the Academia-Industry collaboration'.

The Tampere and Valladolid pilots on Integrated Urban Mobility have allowed to identify the domain's main needs: (i) Improving real-time situational awareness using available and new data sources to

increase the knowledge of the traffic status; (ii) Policy support; and (iii) Sustainable urban freight delivery.



Smart Cities and the use of digital tools/Sustainable energy and mobility in the Brainport Region, Trinidad Fernandez, Triangulum project

The Triangulum project was one of the first 17 European Smart Cities and Communities Lighthouse Projects, which aims to demonstrate, disseminate and replicate solutions and frameworks for Europe's future smart cities. The Lighthouse Cities Manchester, Eindhoven and Stavanger served as testbeds for innovative projects focusing on sustainable mobility, energy, ICT and business opportunities; and the follower cities Leipzig, Prague and Sabadell are committed to replicate the solutions of the Lighthouse cities. The key to success was the collaboration between consortium and academia partners, combining interdisciplinary experience and expertise and using the possibilities of the quadruple-helix urban innovation ecosystem.

In the Lighthouse city Eindhoven, the project focused on the transition of two zero / low energy districts. Eindhoven is the centre of the "Brainport Region", today one of the three top economic engines of the Netherlands. Eindhoven achieved this through smart solutions (e.g. smart mobility, visualization data platform) and fruitful cooperation between industry partners, academia and citizens. The Eindhoven use case focuses on the implementation of a 3D BIM tool (WoonConnect) to retrofitting social houses. This example reflected not only the interoperability and cooperation between the sectors enabled by ICT but also how this kind of tools can support and foster citizen participation. The project concluded in January 2020 and has impacted the cities way beyond the implementation but to show the feasibility and impact of Smart City solutions, while forming a new generation Smart City experts and acted as a Smart City Accelerator for new projects and initiatives within and beyond the project partners and cities.



Source: Stichting Woonbedrijf SWS.Hhvl

AIR4S Digital Innovation Hub, Javier Valero Criado, Spain

AIR4S is a Digital Innovation Hub focusing on Artificial Intelligence & Robotics for Sustainable Development Goals (SDGs) in Spain, with many connections to the public sector (e.g. City of Madrid). AIR4S is committed to have better data access for the public sector and it is aligning its efforts with the European Data Strategy. The UN Sustainable Development Goals (mainly SDG 11: Sustainable cities and communities) are important factors for its activities.

The AIR4S Service model has three main steps: (i) preparation (e.g. assessment based on client’s needs and project definition), (ii) execution (e.g. access to technology assets and services as data space technical capabilities and specific training programmes), and (iii) commercialization (e.g. mentoring on commercialization and data governance). The service cycle helps realise ideas and launch them on the market. This service model is also offered to municipalities.

The two examples presented were (i) Madrid’s i-Space for Sustainability (MiSS), focusing on data integration and homogenisation from unstructured, semi-structured and structured data sources in transport & mobility, smart cities, geography, etc. and (ii) Collaboration with the Regional Consortium of Transport of Madrid, helping to understand mobility patterns of senior citizens and increasing their public transport usage. AIR4S provided consultancy, technology services and training programmes for using the tool and data interpretation. As outcomes of the collaboration, they could present descriptive models for characterisation of mobility patterns and predictive models for the behaviour of individual users based on their mobility patterns.



