Workshop - Local Digital Twins Technology

- 23 March 2021

The Local Digital Twins (LDT) Technology Workshop will bring together technology providers, Research and Technology Organisations, city Chief Technology Officers and other interested players. The aim of the workshop is to raise awareness of digital technology providers and related organisations about the European Union approach regarding Local Digital Twins and discuss how to build European capacity to this end.

Background

Cities and communities have been advancing over the past years through the use of IoT, data analytics and various digital services. There is however still a lack of an integrated approach that will exploit the strengths of AI, cloud computing, advanced data analytics and increased computational power in order to improve the overall performance of a city. To fill this gap, the concept of Local Digital Twins has recently emerged as part of an all-encompassing strategy for Smart and Sustainable Cities and Communities.

Local Digital Twins (LDTs) are a virtual representation of the city's or community's physical assets, processes and systems that are connected to all the data related to them and the surrounding environment. They use AI algorithms, data analytics and machine learning to create digital simulation models that can be updated and changed as their physical equivalents change. Real time, near real-time and historical data can be used in various combinations in order to provide the necessary capabilities for data analytics (descriptive, prescriptive, predictive), simulations and what-if scenarios.

As cities have different needs and challenges, LDTs may focus on a range of different topics and domains; from predicting extreme weather events to urban planning or crisis management. LDTs can visualise processes and dependencies, simulate possible outcomes and impacts, taking into account citizens' needs. Benefits span from cities' operational efficiencies and cost savings, increased resilience and improved sustainability, economic development, participatory governance, increased safety and security. This broad range of benefits can be applied to all three main phases of a city's lifecycle: initial planning and construction, current city monitoring and management as well as future planning. Additionally, LDTs provide a risk-free testing environment that increases the precision of long-term predictions while improving the monitoring and impact assessment of certain decisions that affect large parts of a city's ecosystem.

While several EU cities are starting to implement their LDTs, in order to ensure a large number of EU cities and communities can benefit from this powerful technology; (ii) to enable a minimal level of interoperability between LDTs for challenges that are not limited to a city's boundary; (ii) to enable moving towards a network of LDTs and (iv) spur a significant and fair European digital twin market, fostering innovative European SMEs and growth, the European Commission is introducing a number of policy measures. It aims to fund the creation of an EU LDT Toolbox, including re-usable tools, reference architectures, open standards and technical specifications for LDT and encourages EU Member States to invest in their implementation by cities. The Commission is working with the Living-in.eu community (signatories and supporters) to map existing use cases and potential interest through the LDT iconic project. The Commission will also foster good practice exchange and consolidate knowledge around LDT, identify drivers and barriers for the large-scale deployment of LDT (ecosystems) as well as keep pace with the State-of-the-Art and technological developments

Technology workshop

A stakeholder workshop on Urban Digital Twins held in October 2020 presented different use cases where LDT has been used. The forthcoming LDT Technology Workshop, scheduled for 23/03/2021, 14:30-17:00 CET aims to bring together technology providers, Research and Technology Organisations, city CTOs and other interested players. The aim of the workshop is to raise awareness of digital technology providers and related organisations about the EU approach regarding Urban Digital Twins and discuss how to build European capacity to this end.

Format / draft agenda:

Welcome

Cristina Martinez, DG CONNECT, Unit C5, Technologies for Smar Communities

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LDTs - Policy context

Andrea Halmos, DG CONNECT, Unit C5, Technologies for Smart Communities

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Cities’ experience with LDTs

Roland Heijden, Rotterdam

Jarmo Suomisto, Helsinki

‘20

European LDTs

Discussion in small groups

- **Difference between Digital Twins and Local Digital Twins / LDT ecosystem**
- **Building blocks of a LDT**
- **LDT maturity levels**

Reporting back from the small groups

‘30

Towards an EU LDT Toolbox

Panel discussion – moderated by Svetoslav Mihaylov, DG CONNECT, Unit C5, Technologies for Smart Communities

Pannel members:

Martin Brynskov – OASC

Bart De Lathouwer - OGC

Ulrich Ahle – Fiware Foundation

Philippe Michiels – ANTSER NV, IMEC

Lieven Raes – DUET, Informatie Vlaanderen

Q&A

‘50

Conclusion

Cristina Martinez, DG CONNECT, Unit C5, Technologies for Smart Communities

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https://ec.europa.eu/newsroom/dae/redirection/item/704196

https://scic.ec.europa.eu/ew/register/dgcnect/urban_digital_twins_technology_wo…

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