Smart City Monitor: An Al Digital Twin assistant for municipalities

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31 JAN 2024 PRESENTATION FOR WELLBASED CONSORTIUM USING THE TECHNOLOGY PLATFORM

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What is a Smart City Monitor?

- Advanced IoT software system in cloud
- Runs different models of a City, a District, including the full model of ISO 37120:2018 standard
- Automatically collects many city data from spreadsheets, IoT sensors, SCADAs, vehicles, robots, weather stations, mobiles

Engaging the

Smart City

Government

Cyber-Deffence

Technological Resilency

- Calculating any necessary standard and custom KPIs
- Analysing sustainability of urban systems, objects, processes, in real time and as predicted future
- Presenting analytics to municipality employees and citizens 2024 (C) Copyright GOLEM IMS GMBH, Austria, GOLEM.AT

Who are the target users?

- City administration and local governance in municipalities, city councils, urban communities
- Management of utilities and urban service providers energy, water, waste, waste, transportation, economy, social, etc.
- Urban environment and services including health and emergencies, land value assessment
- Transparent public information about city processes & results

- What problems are addressed?
 Providing consistent holistic vision of a City as a complex big System of Systems (SoS) in real time with cause analysis
- Representing a magnitude of concurrent processes real time,
- Quantitative assessment of the results for resource efficient and sustainable managing of urban communities,
- Improving transparency, non-biased predictability of results,

 Fostering community sustainability and capacity to cope with financial, economic, political and other instabilities under limited resources (budgets, specialists, materials, water, food) and climate change impacts

Let's ask ChatGPT4 how Smart City Monitoring may look like ... pyright GOLEM IMS GMBH, Austria, GOLEM, AT

How AI represents addressing the problems?



Image by ChatGPT4, generated on 30.01.2024

Demonstration of the applications

WELLBASED: Automatic environmental and health data collection from many residence apartments in 6 pilot cities running in separate Smart City Monitor instances for each city

DOME Digital Europe project by EC: Smart City Monitor will support city certification by ISO 37120 and continuing auditing of compliance with major quality management standards

Other HEP projects in the pipeline: Circular tourism, Urban climate change and mitigation, Health ecosystem management, Coastal areas monitoring and protection, etc.



Video in YouTube (3 min): <u>Smart City Monitor intro</u> Live demo: http://pharosnavigator.com

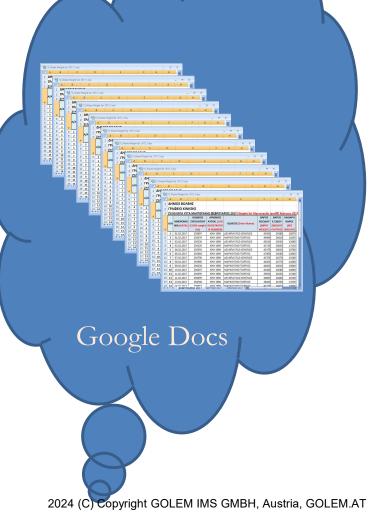
Data examples: Spreadsheet sources

Wastewater.xlsx х В D G A Total amount Total amount of Total amount of Total amount of Total amount of • Waste of wastewater wastewater wastewater wastewater Total number of wastewater undergoing no undergoing undergoing undergoing people served collected primary treatment secondary tertiary by wastewater treatment water data by 1 Date (data) (data) (data) treatment (data) treatment (data) collection (data) 1594176446 2 01.01.2017 90866636 1094983798 69494952 1578909730 75200 ISO 37120 3 01.02.2017 1395724049 112444385 1381383160 1256725111 73460591 75194 4 01.03.2017 1339004633 87745538 1608803349 1315048304 73472893 75514 model data in 5 01.04.2017 1470272928 93074418 1471399800 1138110975 80099333 75503 01.05.2017 1321225534 88041963 1304687241 1311709287 63438276 75527 7 01.06.2017 1544380740 97297217 1457020305 1381808201 67232818 75542 **MS Excel files** 01.07.2017 1454915159 95664025 1579359140 1345393441 62308471 75567 9 01.08.2017 1557539521 93918667 1452190054 1196863725 74304411 75584 10 01.09.2017 1304507473 109830430 1270446543 1098606066 75829266 75571 11 01.10.2017 1492904489 88304399 1441153819 1130573768 72005078 75643 🖬 🔹 🕨 🔄 data_Wastewater 🦯 💱 1 4

MS Excel & Calc files are imported automatically from Linux /Windows servers, Dropbox, etc

Smart City Monitor automatically

- 1. Imports the data from all spreadsheet files
- 2. Saves local copy of data in the SCM database
- 3. Calculates all ISO and municipality custom KPIs in real time
- 4. Analyses each KPI value against targets
- 6. Evaluates sustainability for each process measured by KPIs, main city objects and subsystems and the whole city
- 7. Presents results at interactive dashboard and reports for each stakeholder individually (according to the role and data access rights)



Conclusions & Takeaways

- Smart City Monitor is an unique urban digital technology worldwide that was developed in EU and successfully applied in several Horizon Europe projects
- It is included into the Digital Europe project <u>DOME</u> by EC as a key certified service for EU municipalities to run at the DOME platform by the end of 2024
- Smart City Monitor supports ISO 37120 certification, ongoing compliance auditing, promoting community investment and city image building
- All WELLBASE pilot city partners are welcome to being using the new EU service Smart City Monitor @ DOME platform after August 2024
- This action will promote the WELLBASE dissemination and image of the pilot municipalities in EU and worldwide
- The experience offers attractive possibilities for the partnerships and collaboration in new projects: Horizon Europe, Interreg, ESIF 2024-2025

Online Smart City Monitor demos: <u>https://pharosnavigator.com</u> Video:

> <u>Smart City Monitor intro</u> <u>Smart City Monitor Reports introduction</u>

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DOME project: https://golem.at/dome/

X (Twitter): @MonitorSmart

Thank you!



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