

SIEMENS



**FUSING THE DIGITAL & PHYSICAL WORLD
WITH **MINDSPHERE CITY GRAPH****

UNLOCKING THE POTENTIAL OF DATA AT ASPERN SMART CITY RESEARCH

COMBINING THE POWER OF SIEMENS ADVANTA & MICROSOFT

TEAMING UP TO TACKLE URBAN CHALLENGES OF TODAY AND TOMORROW AND UNLOCK FULL POTENTIAL OF YOUR DATA



**UNCOVER YOUR
INFRASTRUCTURE'S
INEFFICIENCIES**



**TURN DATA INTO
KNOWLEDGE
- REAL TIME**



**ACHIEVE YOUR
SUSTAINABILITY GOALS**

CREATING A MODEL OF REALITY BY FUSING THE DIGITAL & PHYSICAL WORLD

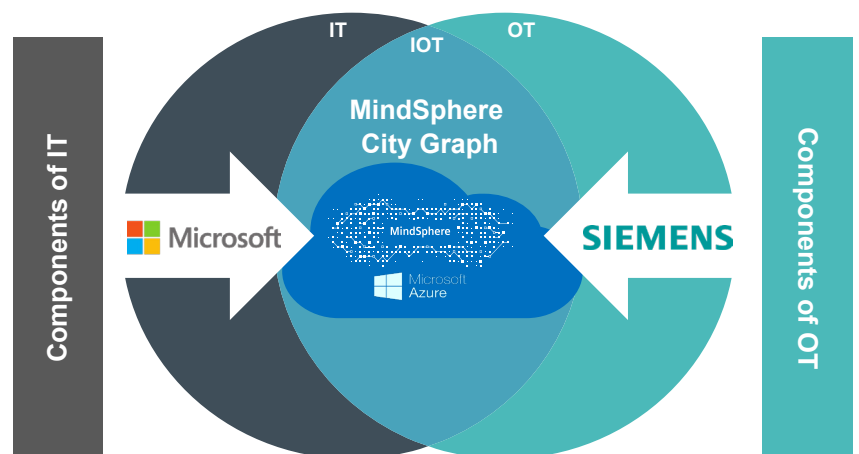
TRACK THE PAST, CONTROL THE PRESENT, AND PREDICT THE FUTURE

Siemens Advanta and Microsoft jointly developed a digital twin: the MindSphere City Graph, an Open Urban Platform, which models all the "things" operating in a city, uncovers inefficiencies, builds holistic approaches for use cases, and gives data in the hands of residents, the urban administration, and solution providers.



Today, more than ever, cities need to develop towards a resilient and sustainable infrastructure. However, with increased complexity, traditional IoT systems reach their limits very fast and can't solve today's problems. Therefore Siemens and Microsoft joined their forces, enabling a simple but powerful way to build a real-time model of a city.

You can already begin with a tiny model and gain experience with a low investment.



GET A FIRST GLIMPSE AT WHAT IS POSSIBLE AND DIVE INTO OUR PROJECT WITH ASPERN SMART CITY RESEARCH

As the energy demand for e-car charging is already increasing significantly and will be one of the major energy consumers within a city's infrastructure in the future, we supported ASCR, a joint venture between the energy provider and network operator of Vienna and Siemens, to find a solution on how they can...

... utilize the electricity network to maximize the supplied energy

... communicate & share information of extra network capacity reserves for electric car users

... improve system efficiency & operation by connecting charging points to buildings & their parking lots

+40 

**CONNECTED IOT
FIELD DEVICES**

25 

ELECTRIC CARS

FUSING THE PHYSICAL AND DIGITAL WORLD

A digital twin of the electricity grid was created, using Azure Digital Twin Definition Language v2, to reflect the real-world status of network load from multiple IoT field devices. These different data sources were brought together into the Mindsphere City Graph, matching with data from the charging points for the test area to analyze impact and train machine models for their availability.

After creating the model from the city ontology, domain specific City Graph Services were set up, using Azure App Services to enable business rules and logic to be realized on top. Based on this foundation, applications for analyzing and predicting network capacity, as well as providing the information for the end user were implemented.

BY USING THE POTENTIAL OF THE MINDSPHERE CITY GRAPH YOU GAIN...

UP TO **25%**

Increase of efficiency

UP TO **20%**

Production increase

UP TO **15%**

€ Cost savings

UNLOCKING THE FULL POTENTIAL OF THE MINDSPHERE CITY GRAPH

The deployment of the MindSphere City Graph led to a significant impact, by coordinated interaction with the electricity grid ASCR was able to improve system efficiency and operation. Consequently, the grid will be more resilient, despite an increasing demand and ASCR can extend the Digital Twin with any ontology and related for many other business use cases. Finally, citizens will benefit from getting their car charged in an optimum of charging location, energy tariffs, time, and system costs.



Cost efficiency



Safety & Security



Environmental Sustainability

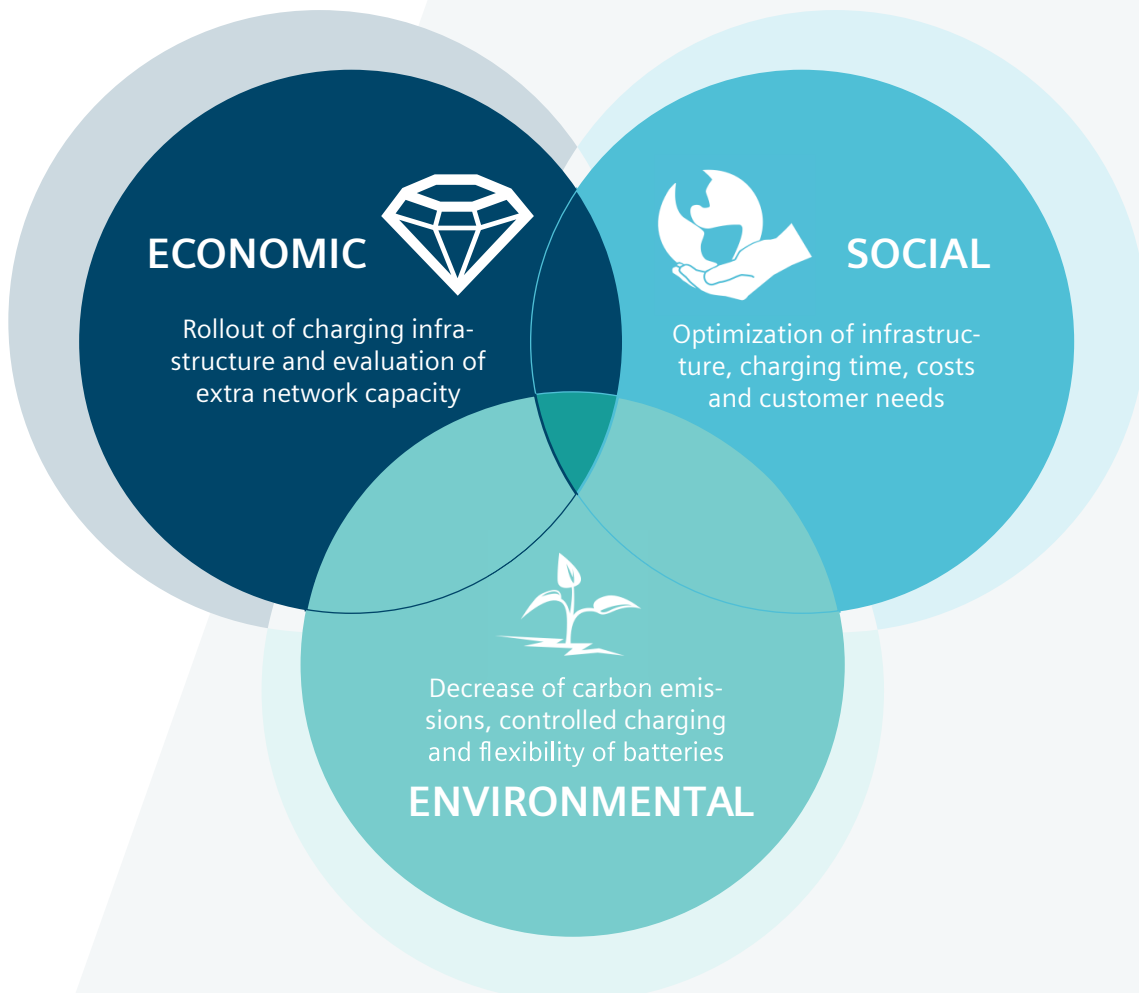


Citizen satisfaction



Citizen inclusion

A SUSTAINABLE SOLUTION TO UNLOCK A BETTER FUTURE.



WHAT'S NEXT?

BUILDING ON EACH OTHER.

The City Graph will have significant impact on optimizing city operations. Envision data from traffic, energy, infrastructure, environmental sensors, and asset usage being available at any time to make the city a better place to live.

Cities or smart infrastructure operations who desire to provide better services and a higher quality of life for their residents, are enabled to continuously improve in a fast, versatile, open, and collaborative way. Unlike use case specific implementations or an isolated view from just one city or vendor, the MindSphere City Graph unlocks the potential to build a digital model of things happening in your city to run any IoT related use case. Building on top of what other cities have already designed the digital feedback loop

enables truly inter-connected, holistic approaches and cross-city sharing for each use case – to share learnings and IoT evolutions and provide answers about how to sustainably decarbonize our climate. By unlocking the full potential of IoT, developing sustainable solutions to enable resilient infrastructure Siemens Advanta and Microsoft technology, will realize the mission of a more resilient, sustainable, and equitable world for society, the environment, and the economy.



“With the Mindsphere City Graph our partners Siemens Advanta Solution and Microsoft supported us to integrate multiple data sources in an efficient way and we were able to jointly build digital twins of our city district in a very short time frame.”

Roman Tobler, Manager at ASCR and Wiener Netze



Why Siemens Advanta?

Siemens Advanta Solutions is a trusted partner for IoT and the broader digital transformation and supports you on your unique digital journey. It is part of Siemens Advanta, which employs holistic approach to developing individually tailored strategies - from strategy to design & prototyping to solutions & implementation, we support our clients globally to successfully re-invent your business and deliver IoT solutions that are as unique as an individual fingerprint. With our Internet of Things Service Unit, we pair our unmatched industrial DNA with strong IoT expertise to drive sustainable growth in a digital world. We know how to tackle the challenges of today with holistic digital offerings and individual solutions and together with our clients we create, plan, and deliver end-to-end solutions along the entire IoT value chain – all from a single source.

Get in touch

Leverage our capabilities, infrastructure and domain expertise to obtain the technology solutions you need to integrate the digital transformation and remain competitive and proactive.

Business request:
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About Siemens Advanta

We provide end-to-end IoT solutions and create your unique digital journey - from consulting to design and implementation.

Offering unmatched industrial DNA paired with strong IoT experience to drive sustainable growth in a digital world, we support you globally to successfully re-invent your business.

For more, visit www.siemens-advanta.com