



ECOM-X – Aspern Data Circle

Sharing data enables green energy exchange

Vienna, 07/10/21

Gerhard Engelbrecht, Siemens Technology

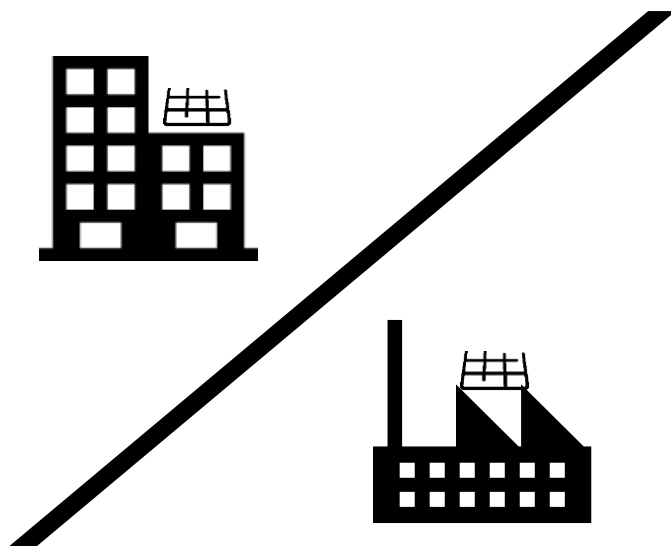
Content

- **Overview**
- Concept & Architecture
- Proof of Concept
- Summary

Towards a new project ...

Energy COMmunities

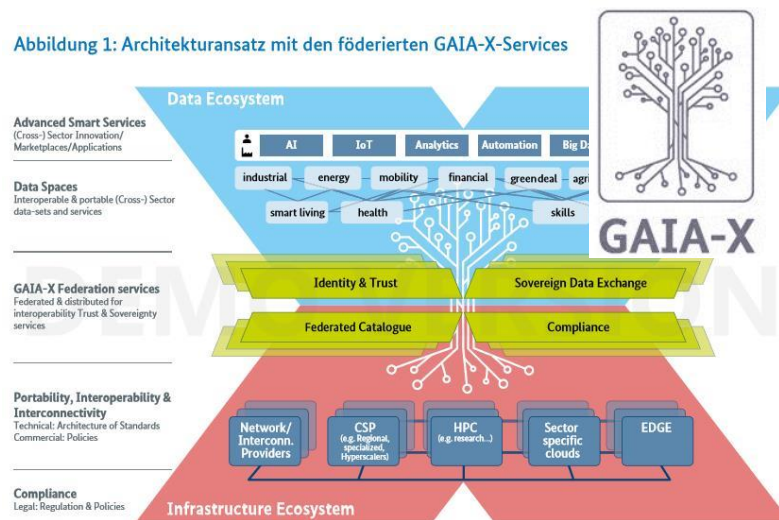
- Recent legislative changes
- Connect different domains



GAIA-X

- Data infrastructure in Europe
- Focus on data sovereignty

Abbildung 1: Architekturansatz mit den föderierten GAIA-X-Services



Quelle: BMWi

ECOM-X

- Aspern Energy Community of Residential & Industrial Sites powered by GAIA-X
- Project to investigate Energy COMmunities across domains using GAIA-X as data infrastructure

Aspern Data Circle ECOM-X

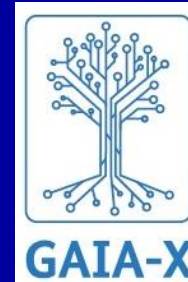
Aspern Energy Community of
Residential & Industrial Sites
powered by GAIA-X

Starting point

- Local energy communities enabled by EU regulation
- Building and grid testbeds (energy consumers & generation) @ Seestadt Aspern
- Operational digital industry pilot @ Seestadt Aspern

Proposal

Demonstrate a **GAIA-X data circle** to enable cross-domain participation in **energy communities** for mutual benefit of **industry and residential sites**



Digital Industry & Smart Infrastructure

Project details

- Timeframe: **06/21 to 12/21**
- T RDA Collaboration: **4 RGs**
 - Analytics & Artificial Intelligence
 - Software & Systems Innovation
- External Collaborations:
 - Vienna Technical University
 - Austrian Institute of Technology
 - Intuiquest

Workstreams

Concept

- Business Case
- Stakeholders & Interactions
- Architecture

Data infrastructure

- Assess On-premise infrastructures
- Data layer solution

Demonstrator

- Proof of concept
- Energy sharing potential
- Aspern Research Program

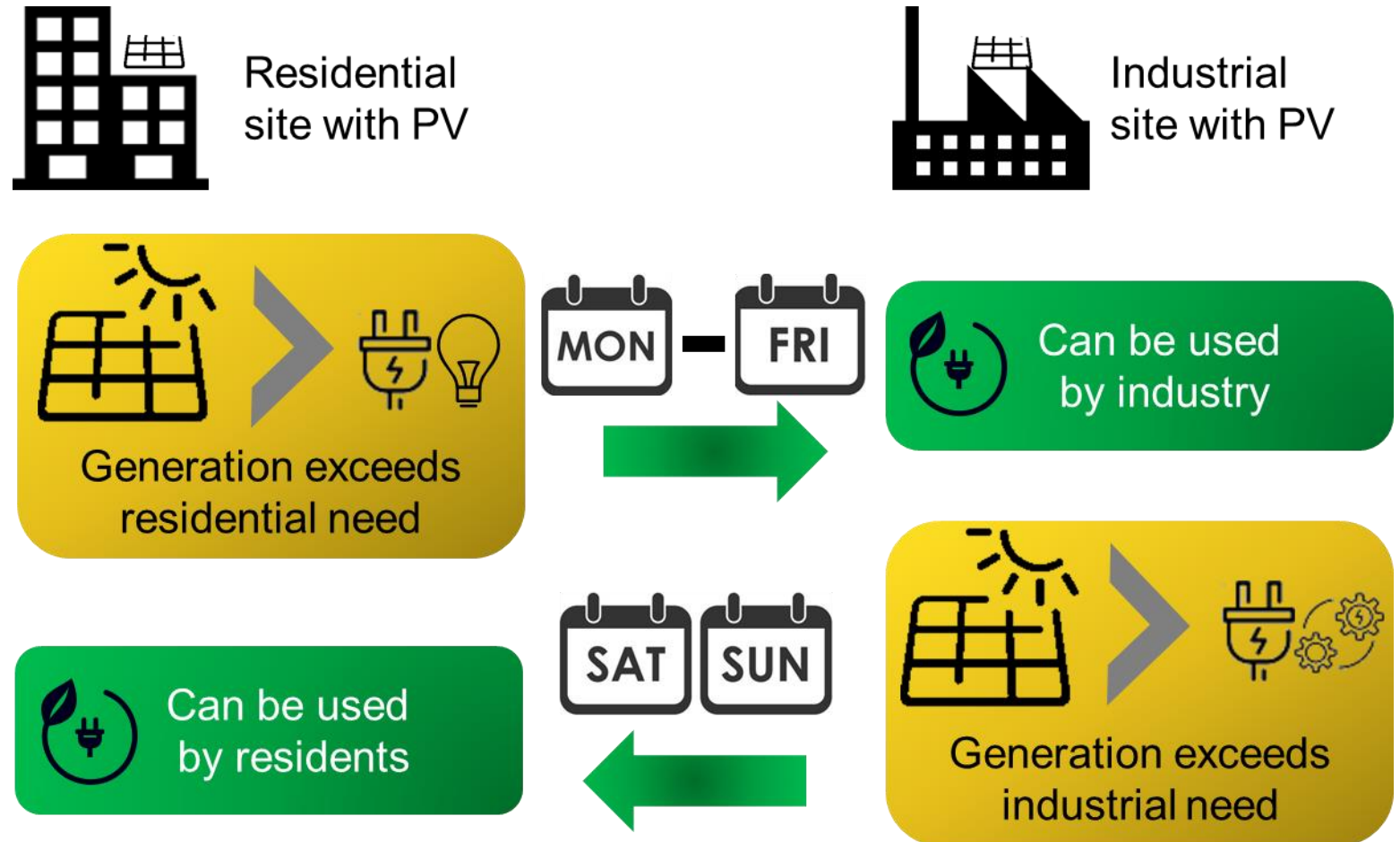
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Business case: Energy community with industrial and residential sites

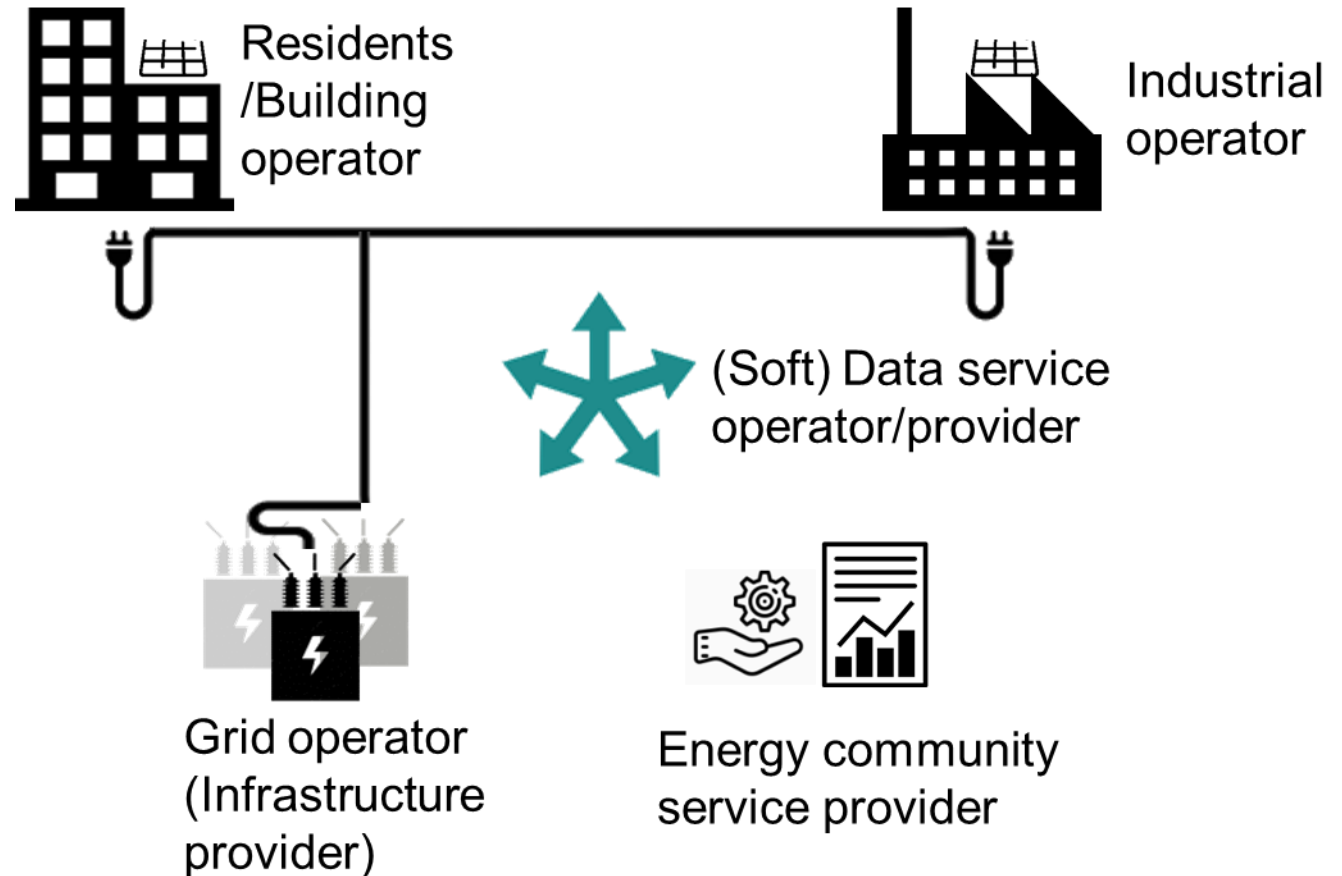
Energy communities enable **mutual benefit** for industry and residents by **using excess-energy generation**.

- ✓ Increased sustainability due to locally generated green energy
- ✓ Cost savings by energy community trading



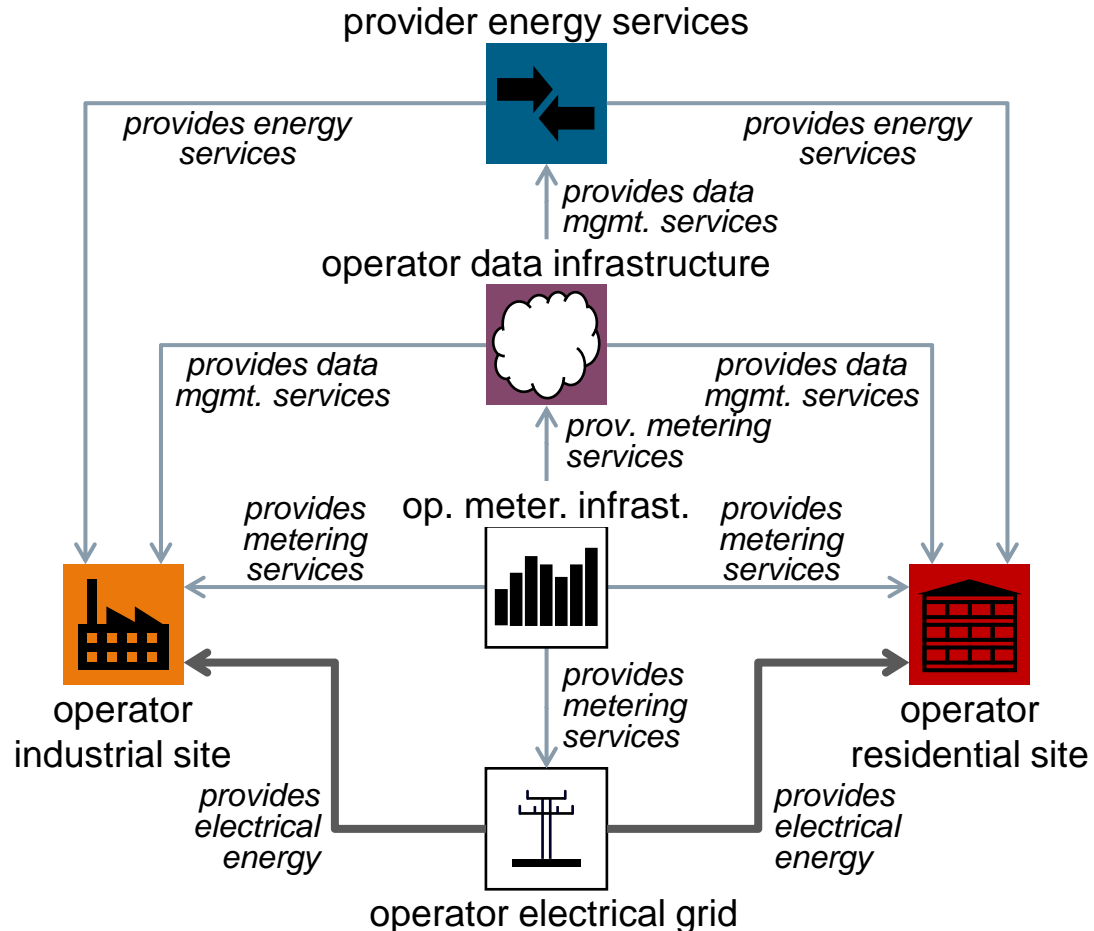
Stakeholder and interaction

- Energy communities stakeholders: residents, industry, grid operator and EC-provider)
- Interaction using **data service operator** to be discussed/investigated
- Data service provider powered by GAIA-X



Possible Future Scenario

Establishment of independent operator data infrastructure



Participant Services

- Prognosis/Forecast (based on current/additional data), if provided a benefit (offers) are expected

Metering Services

- Energy consumption/generation of customer

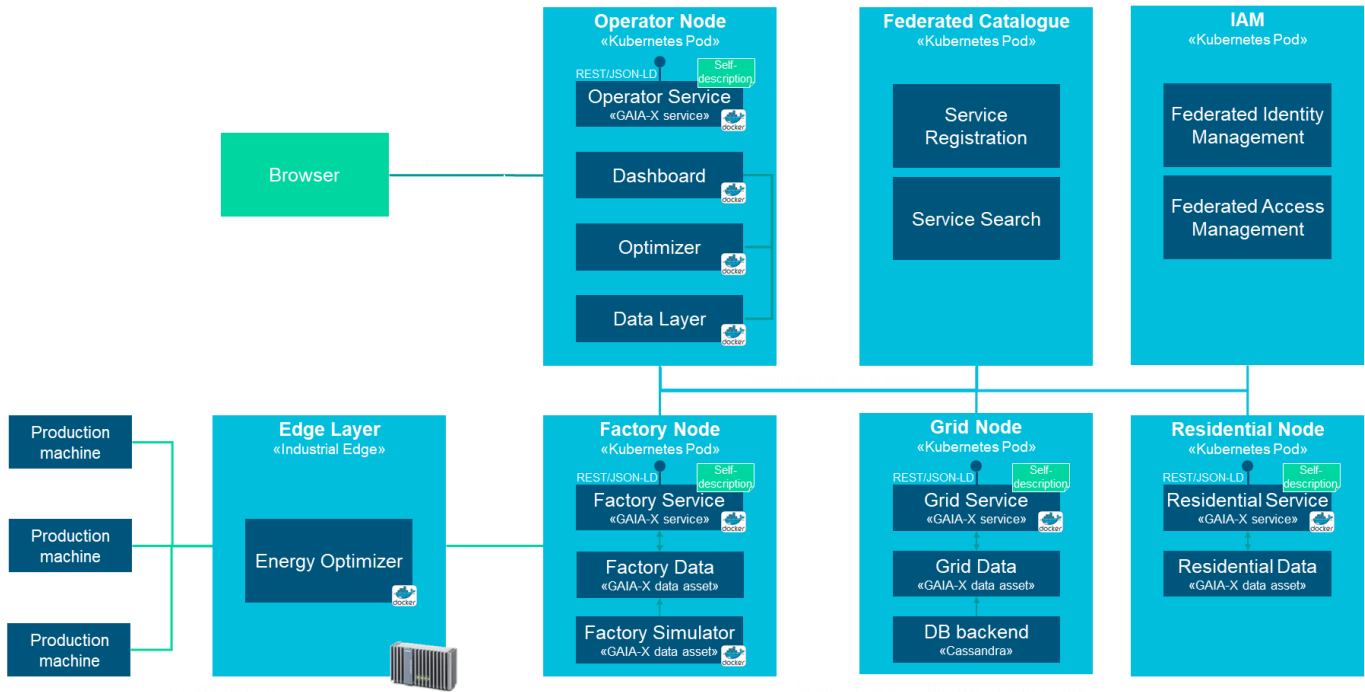
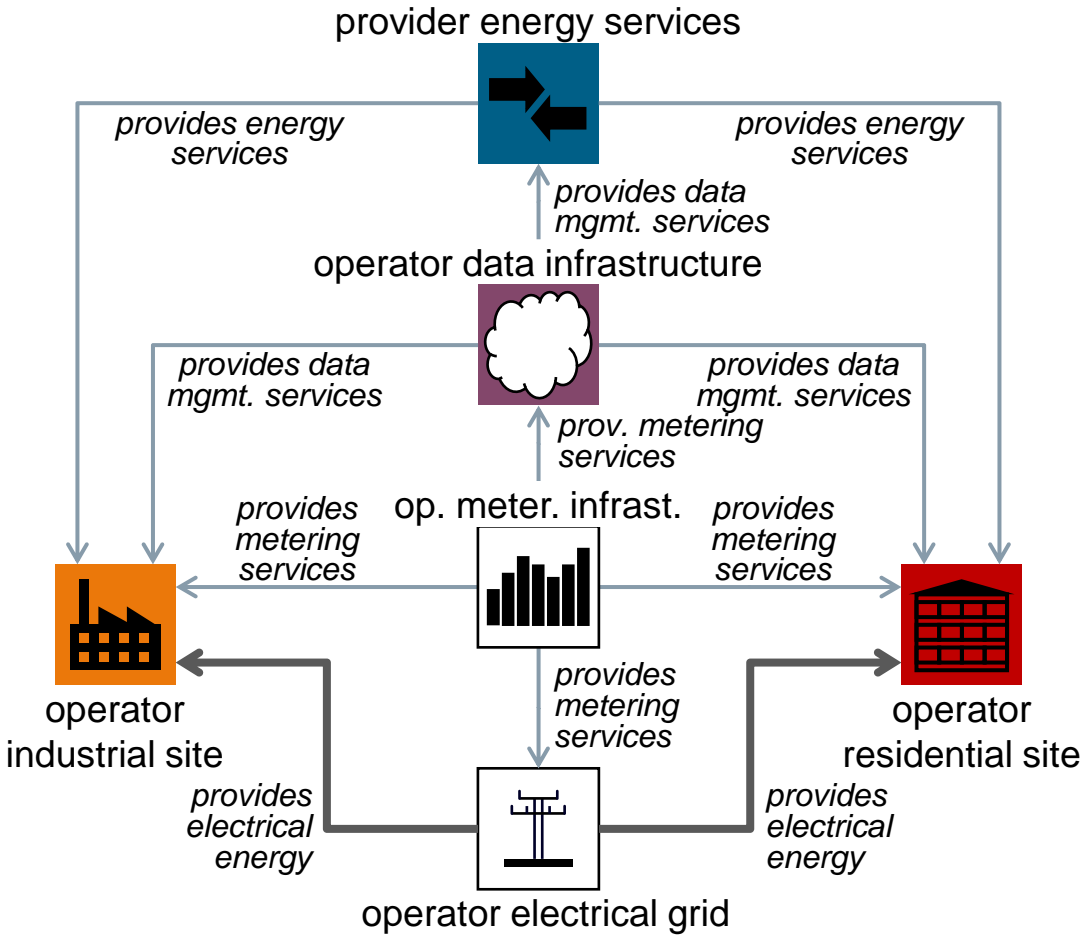
Data Management Services

- Aggregation/Anonymization of data (Broker?)
- Aggregation/Prognosis/Forecast (based on history)
- Federated catalog (yellow pages)

Energy Services

- “Onboard” for Energy Community instance
- Billing, Visualization, Suggestion/Optimization (Value-adding Services)

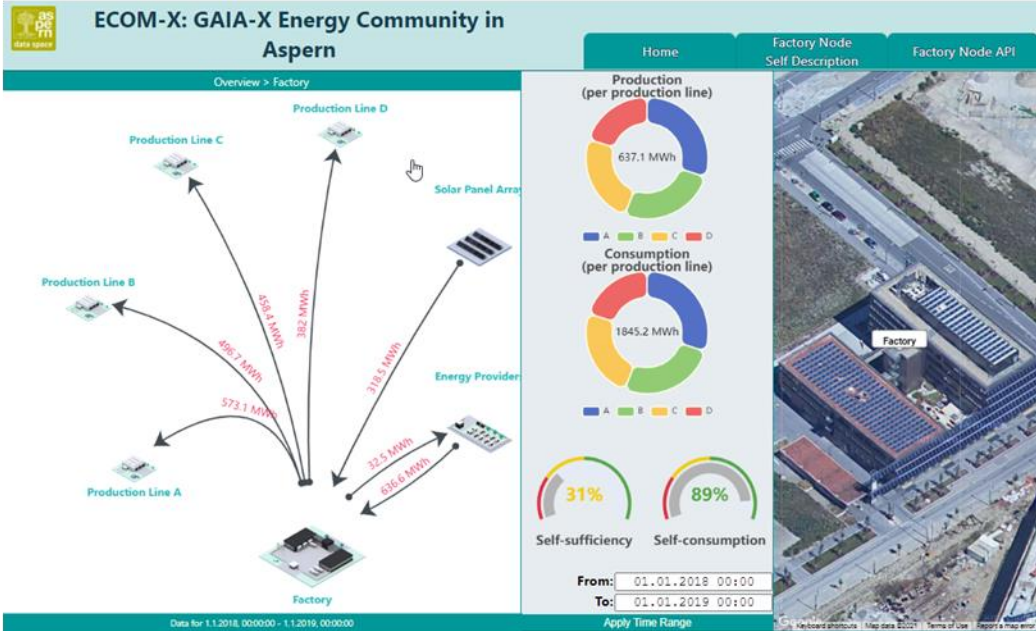
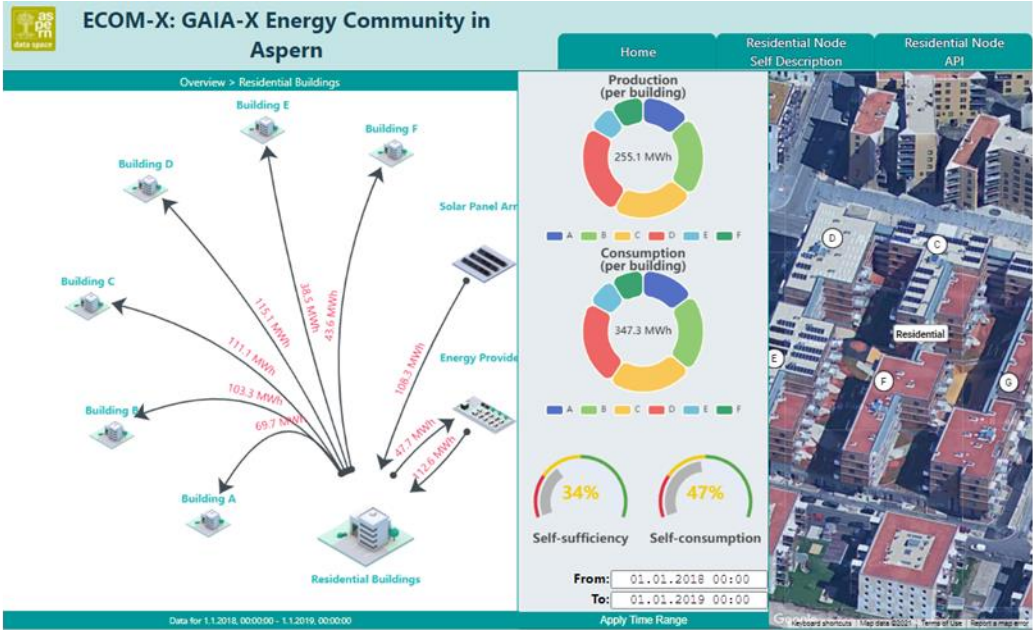
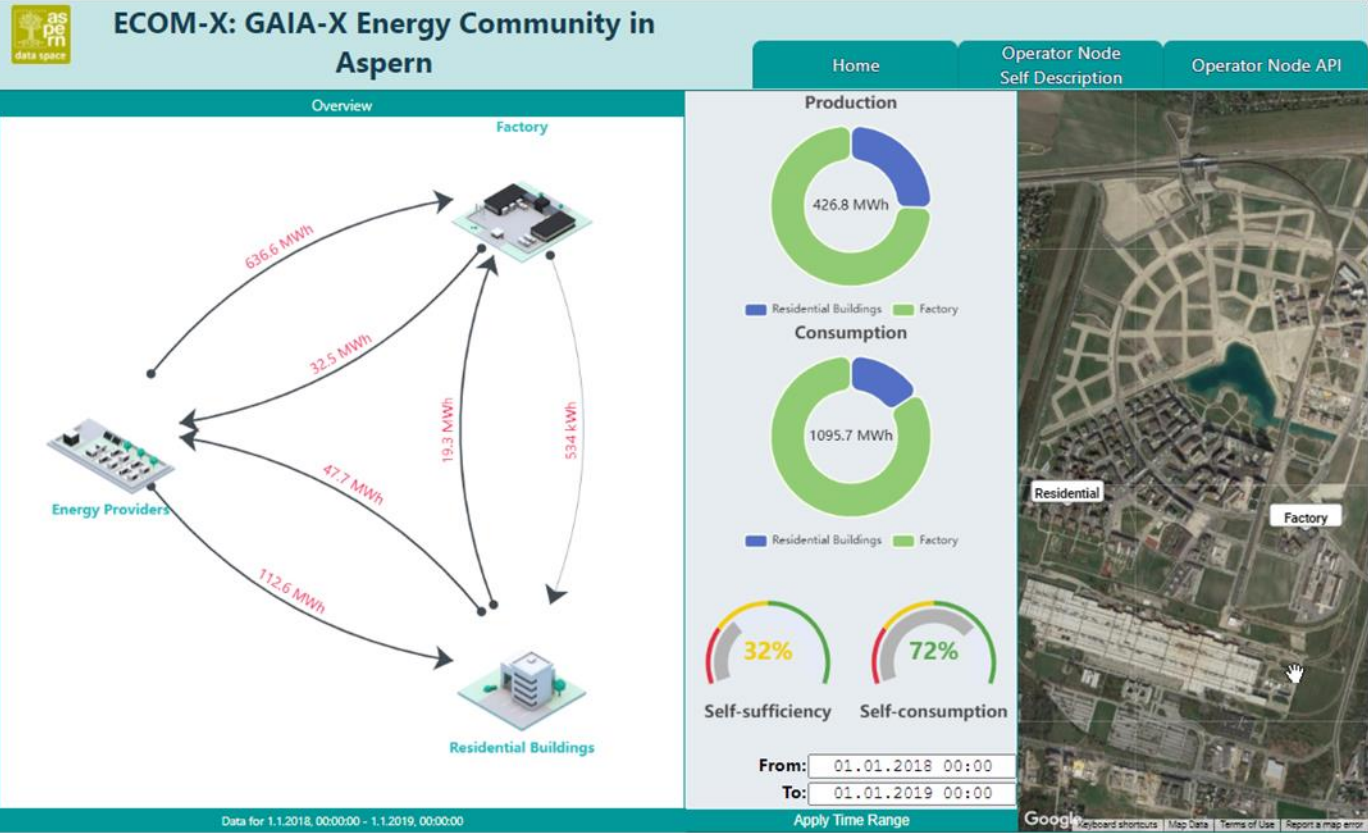
Towards a service-oriented architecture



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ECOM-X Proof of Concept



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Summary

- ✓ ECOM-X – Aspern Data Circle for Energy Communities with residential & industrial Sites
- ✓ Business-Case with mutual benefit to share renewable energy
- ✓ GAIA-X – Data infrastructure initiative in Europe
- ✓ Siemens Technology in Austria

| Contact

Gerhard Engelbrecht

Senior Scientist Data Analytics & Artificial Intelligence

gerhard.engelbrecht@siemens.com

+43 664 8855 1634