The urban energy DataHub for your Smart City

UE urban energy

powered by adesso | PHOENIX CONTACT Innovation Ventures GmbH

www.urbanenergy.de

adesso | business. people. technology.

Leading IT provider in German-speaking markets

over 5,000 employees

449 Mio. € in revenue

PHŒNIX CONTACT
Innovation Ventures GmbH

Market leader in industrial automation and connection technology

over 17,600 employees

2.48 Billion € in revenue

urban energy GmbH
Made in Berlin-Friedrichshain
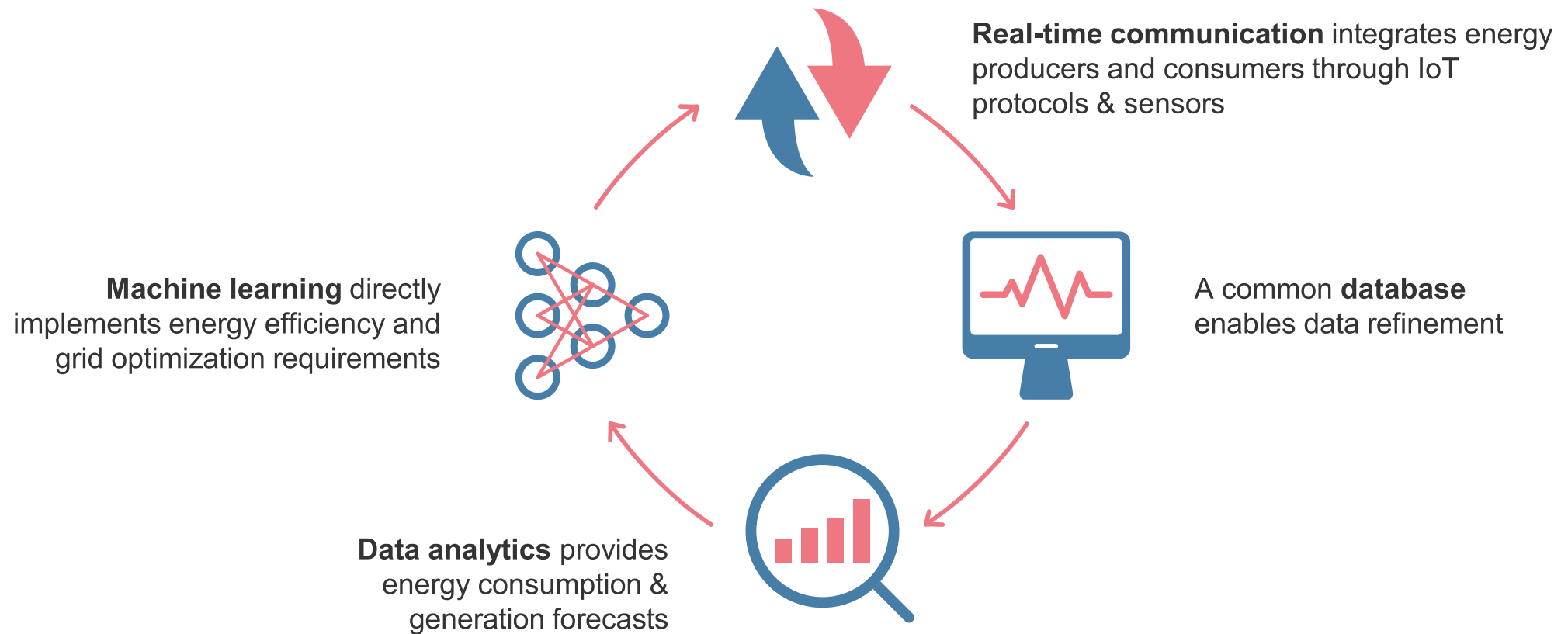
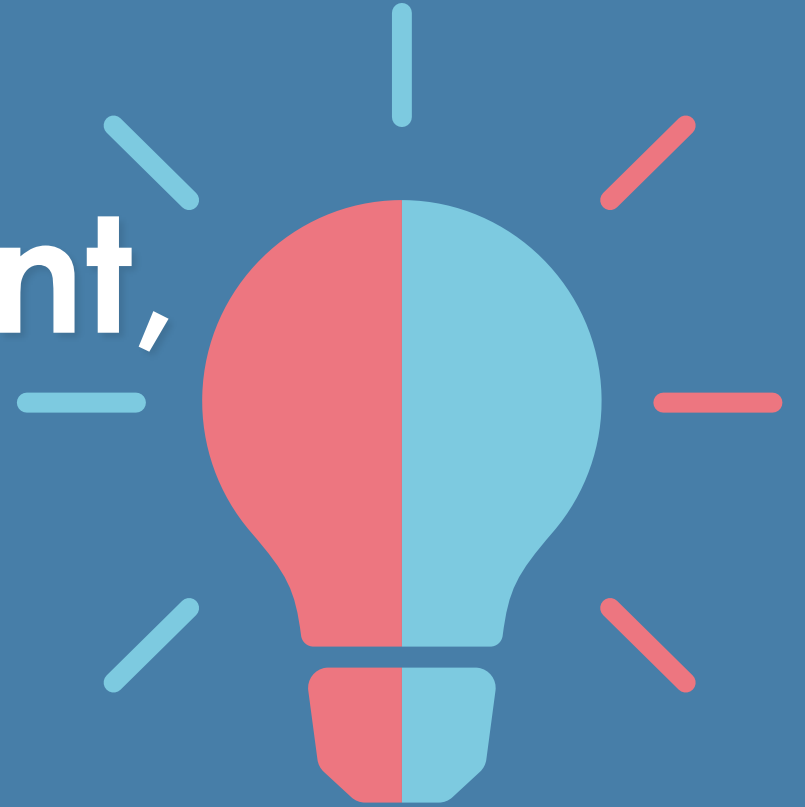**17 Smart City enthusiasts
One Energy DataHub**

The path to success!

To meet the challenges of the future, energy and cost-efficient solutions grounded in artificial intelligence and automation are necessary.

Real-time communication integrates energy producers and consumers through IoT protocols & sensors

A common **database** enables data refinement

Data analytics provides energy consumption & generation forecasts

Machine learning directly implements energy efficiency and grid optimization requirements

City districts or industrial parks

> **Broken communication** between energy producers & consumers (data silos & lack of energy efficiency incentivization)

> **Strong reliance** on energy suppliers despite the availability of renewable energy

> **Expensive charging processes** as a result of a lack of prioritization of energy from suppliers

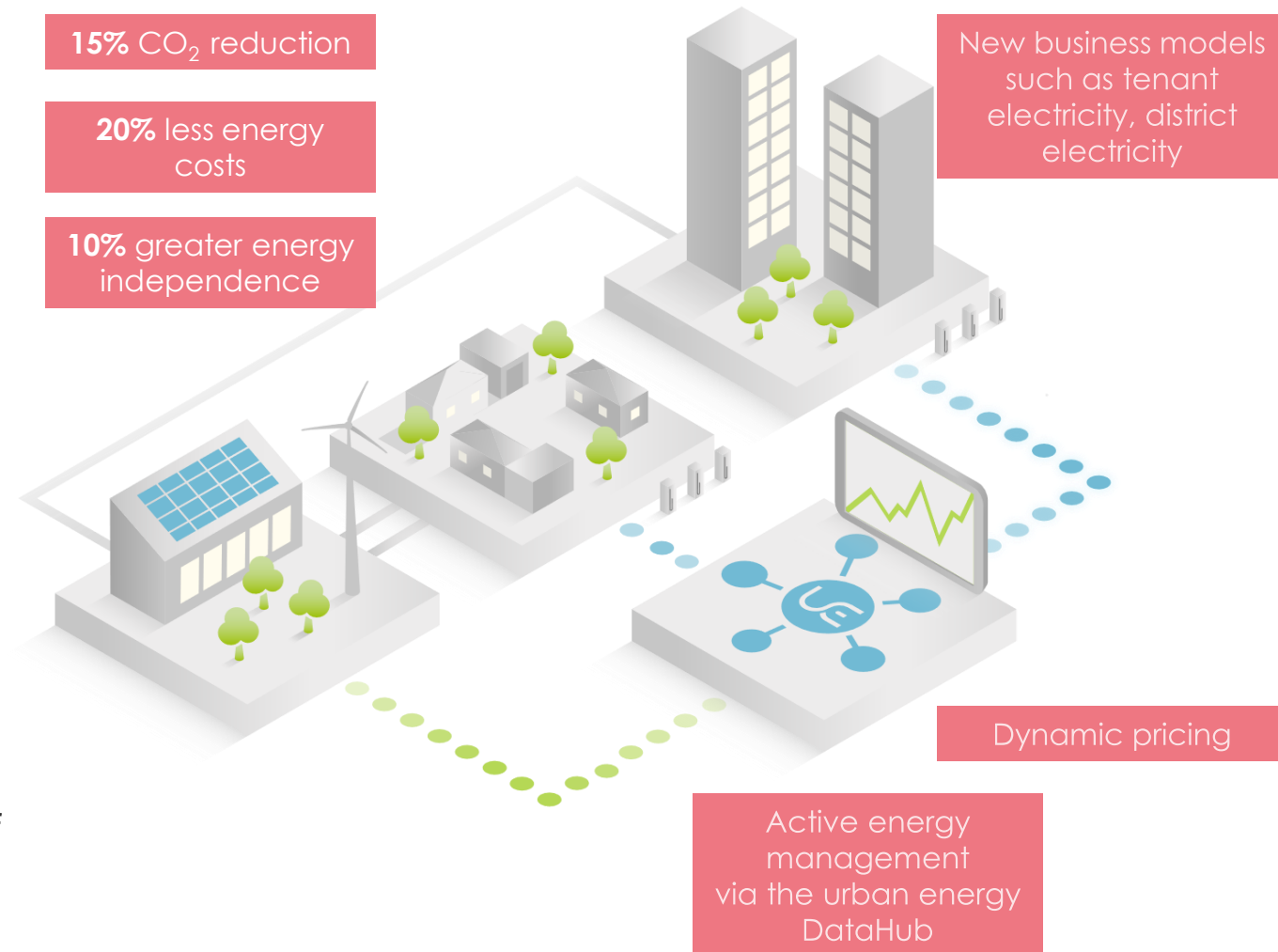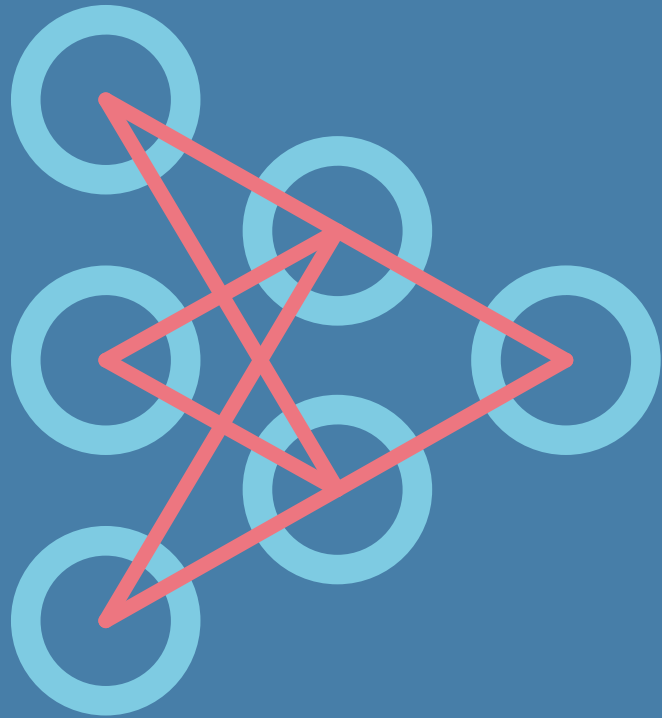> **High network fees** due to high grid load (uncontrolled usage & charging)

Disintegration of consumption

Data silos of renewable energies

Lack of visualization

No charger integration

True energy & cost efficiency is not possible
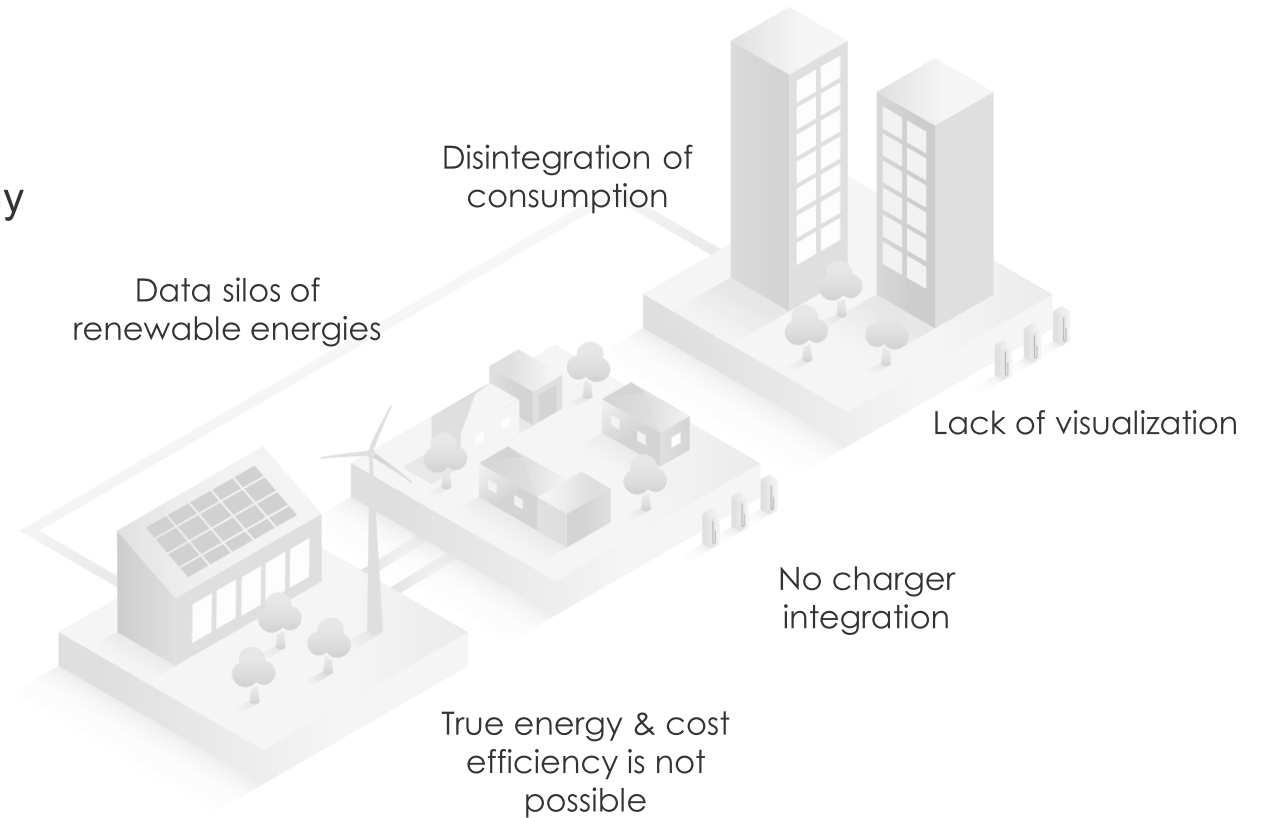
DataHub – for the districts of the future

Residential, commercial & industrial real estate

> **Active energy management:**
> direct control of consumption & production

> **Consumption reduction:**
> reduce costs & CO_2

> **Machine Learning Algorithms:**
> customized generation & consumption forecasts

> **Reduction of infrastructure costs** and
> enablement of network connection permits

> **Integration** of *charging stations*

> **Prosumer App** for tenants or employees

> **urban energy Community**: simple integration of
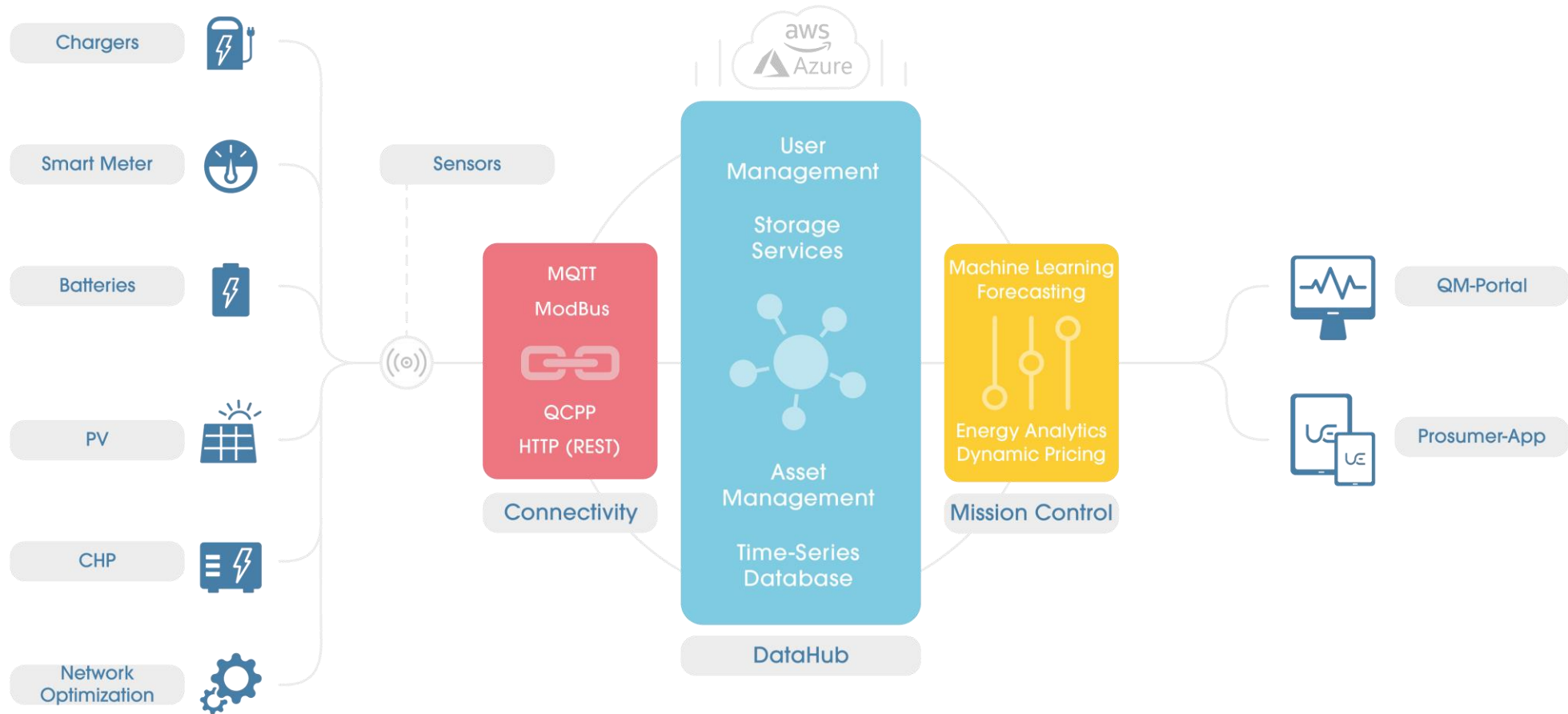> PV, CHP, and smart meters

15% CO_2 reduction

20% less energy costs

10% greater energy independence

New business models such as tenant electricity, district electricity

Dynamic pricing

Active energy management via the urban energy DataHub

urban energy DataHub

Chargers

Smart Meter

Batteries

PV

CHP

Network Optimization

Sensors

aws
Azure

Connectivity
MQTT
ModBus
QCPP
HTTP (REST)

DataHub
User Management
Storage Services
Asset Management
Time-Series Database

Mission Control
Machine Learning Forecasting
Energy Analytics Dynamic Pricing

QM-Portal

Prosumer-App

Simple integration of predictions (Machine Learning)

Incorporation of data in real time (IoT)

Data protection

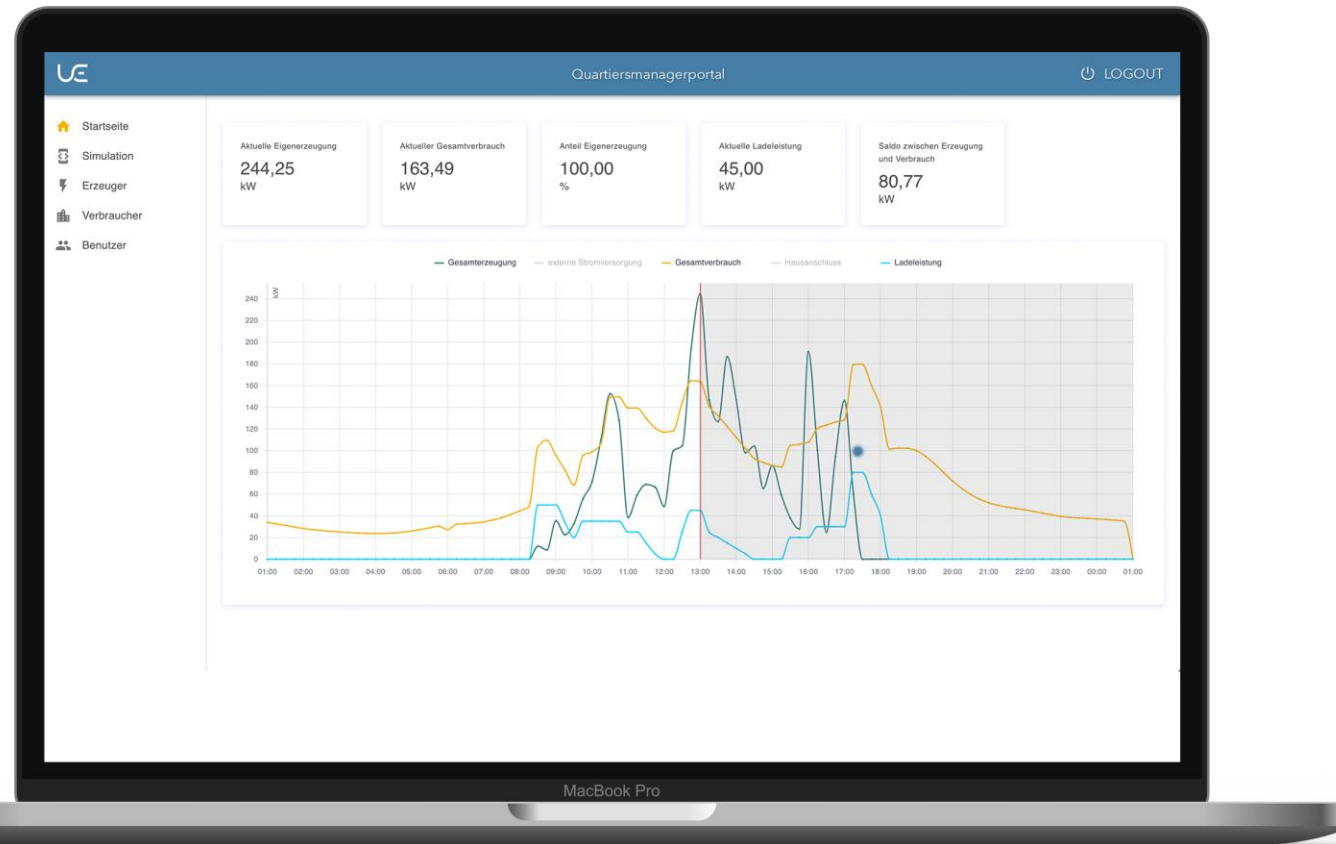Infrastucture independent (Cloud or On-Premise)

All information at a glance

Scalable & Modular design

District manager Portal

Energy management & live data at a glance

> At the heart of the platform are **algorithms for forecasting** production and consumption

> **Direct control** is provided through backend services

> **Responsive frontend** delivers separate management and visual evaluation of systems via PC, tablet & smartphone
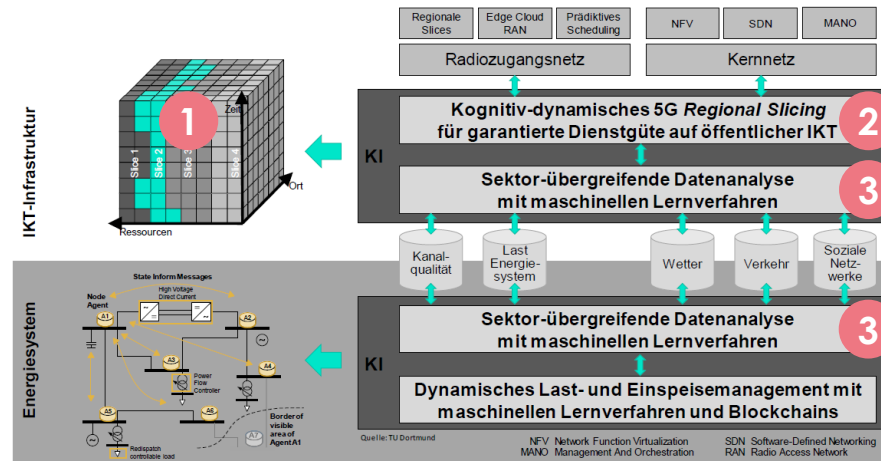
5Gain research project

5Gain project goals

Network a district's assets via the new 5G mobile standard

Divide the power grid into individual districts & "slice" (1) the 5G bandwidth (dependent upon current applications)

Manage load and generation in a largely decentralized and autonomous manner

Use blockchain technology "Smart Contracts" for all accounting

> 3-year project
> 5.5 Mi. € capacity
> 9 consortium partners

Gefördert durch:

Bundesministerium für Wirtschaft und Energie

aufgrund eines Beschlusses des Deutschen Bundestages

urban energy work package

Establish the urban energy DataHub & networking infrastructure (generation / consumption)

AI:
Forecasting of the required application bandwidths and the respective size of the 5G slices (2)

AI:
Dynamic load and feed-in management using machine learning methods.
Forecast of power generation & energy consumption in the respective districts (3)

UE

> 5G communication & development of an Energy DataHub within a city district

> Dynamic load and production management using machine learning

Gefördert durch:

Bundesministerium
für Wirtschaft
und Energie

aufgrund eines Beschlusses
des Deutschen Bundestages

3-year project

5.5 Mio. € capacity

9 consortium partners

adesso | business. people. technology.

Fraunhofer

UE urban energy

CIO² Chief Information Innovation Office

tu technische universität dortmund

RWTH AACHEN UNIVERSITY

PHYSEC security for things

DEW 21

innogy

urban energy

powered by
adesso | PHŒNIX CONTACT
Innovation Ventures GmbH

Paul Dittrich
+49 152 38097533
Paul.Dittrich@urbanenergy.de

David Stolz
+49 163 7309553
David.Stolz@urbanenergy.de

urban energy GmbH
Rotherstr. 19
10245 Berlin
Germany

www.urbanenergy.de