

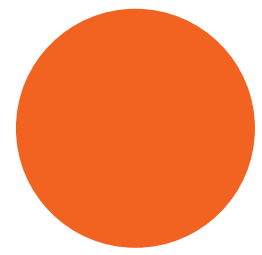
seensy

sensing
energy
efficiency



SOLUTIONS

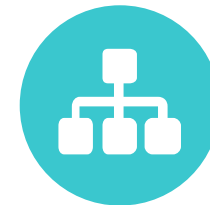
We will evolve the way energy is sensed.



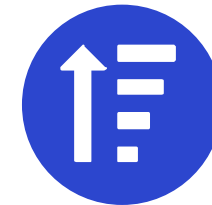
BOOSTING SMART COMMUNITIES

SEENSY helps smart buildings/companies/cities to the next energy level

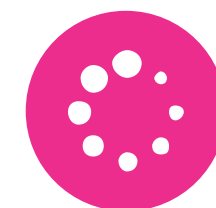
by supporting decision-makers to **identify energy efficiency gaps** and potential solutions and evaluate the costs and benefits of various interventions.



by **improving energy efficiency** services and increase competitiveness.



by integrating energy efficiency into procurement, financing, buildings, transport, energy assessments and urban planning.



by **saving energy** and reduce emissions.

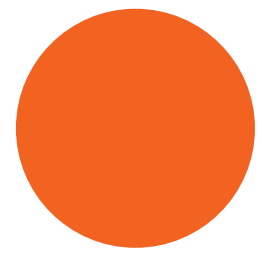


by helping understand opportunities, **measures** for energy efficiency improvements, prioritise actions and define constraints.



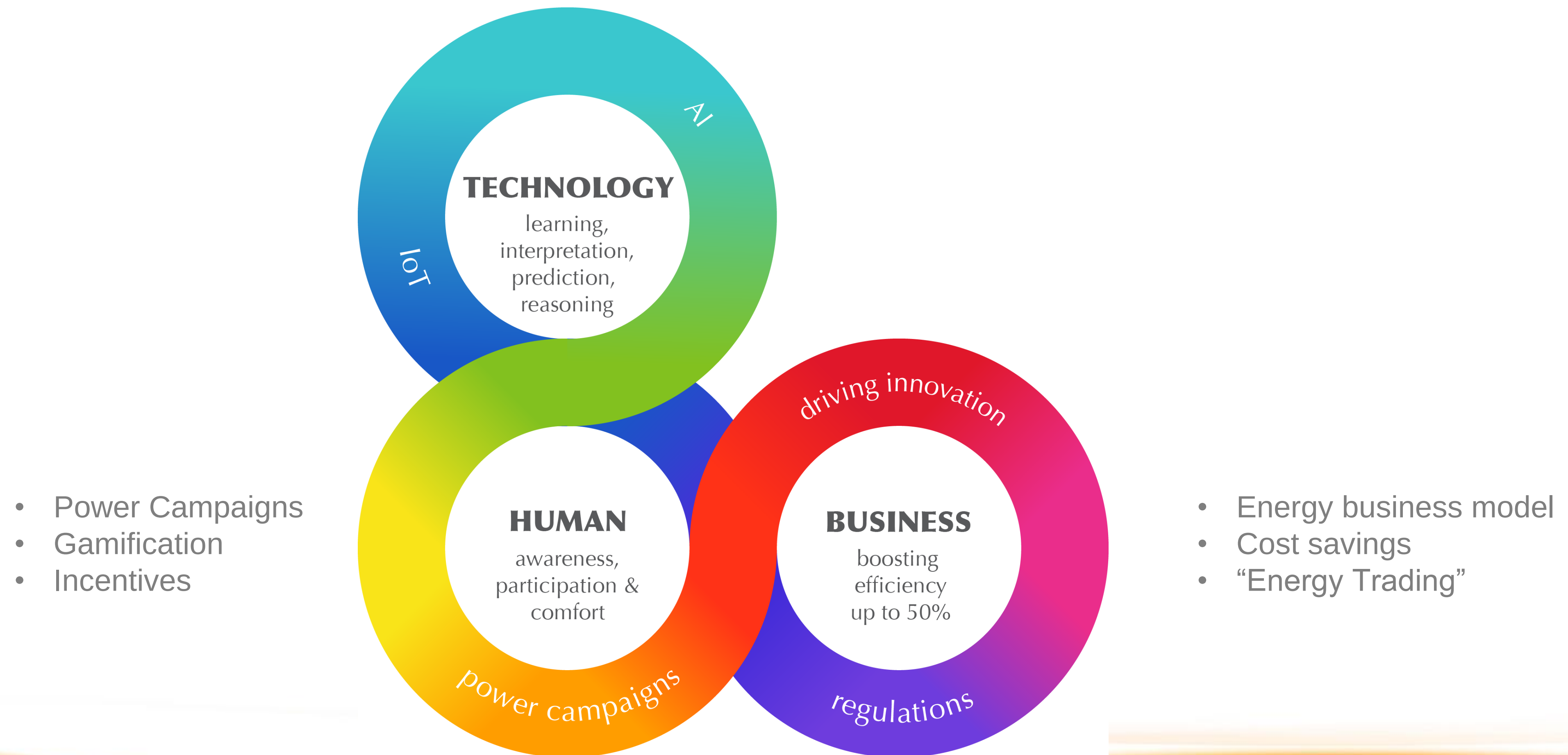
by **engaging end-users** and rising **awareness** in innovative ways.

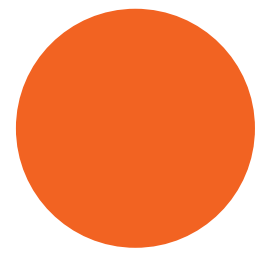
- **Identify inefficiencies**
- **Define effective measures**
- **Save energy costs**



Seensy Co-Creation approach

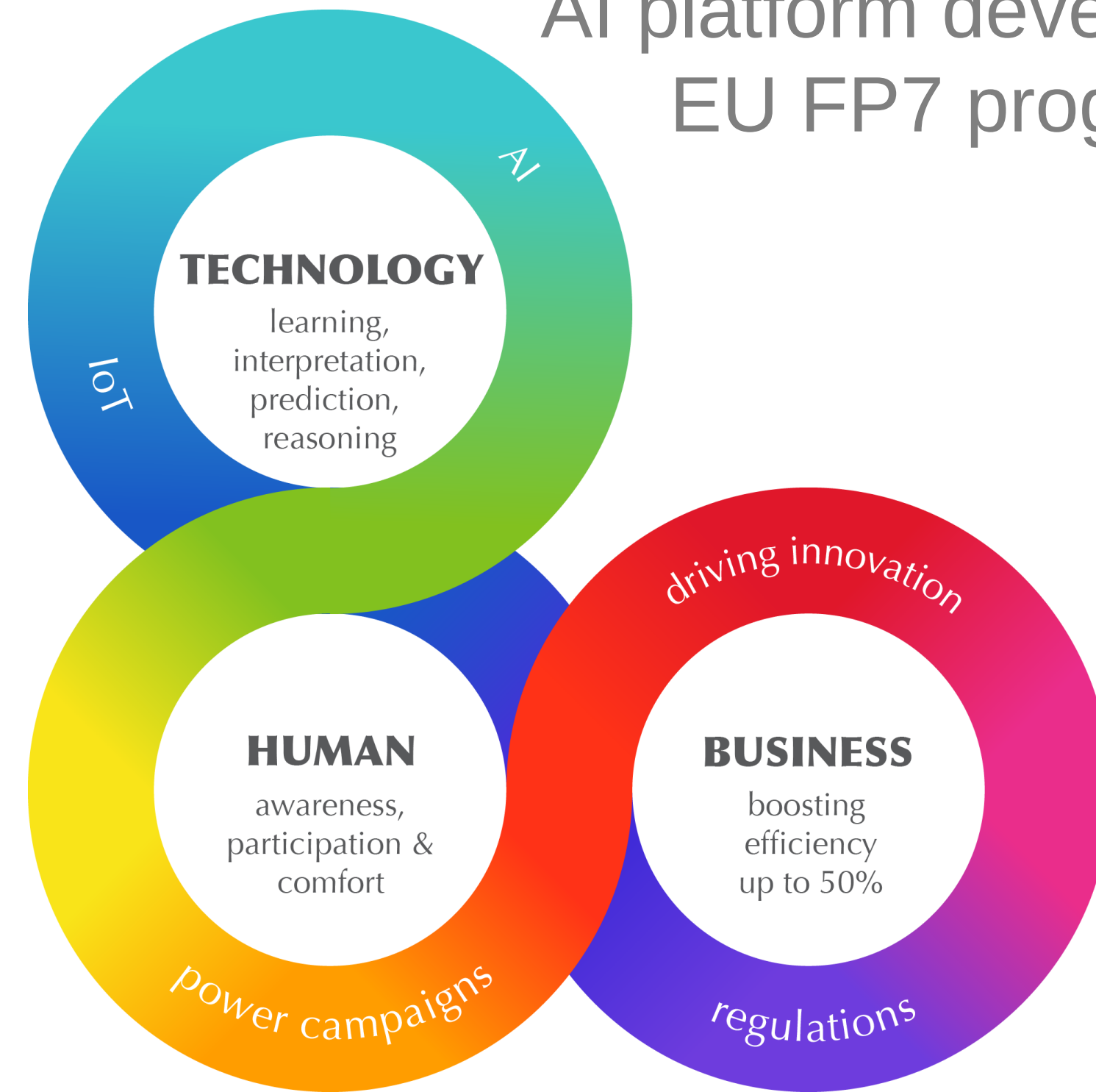
- Understand inefficiency combining different factors and parameters
- Demand forecasting and identify peak loads
- Identify areas for interventions (Human+Building)





PRODUCT

AI platform developed in
EU FP7 program



Power campaigns
(behavioural change)



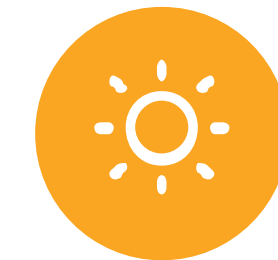
SEENSY EVALUATION

- Collect initial data
- Initial evaluation
- Plan Performance simulation phase



PILOT

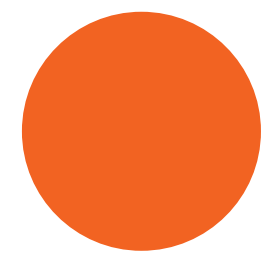
- Micro-scale installation
- Understanding building and human behaviour
- Energy savings roadmap
- Proposal for Enterprise roll-out



SEENSY ENTERPRISE

- Full deployment in an iterative approach
- Full scale user engagement
- Integration with existing applications
- Customised services

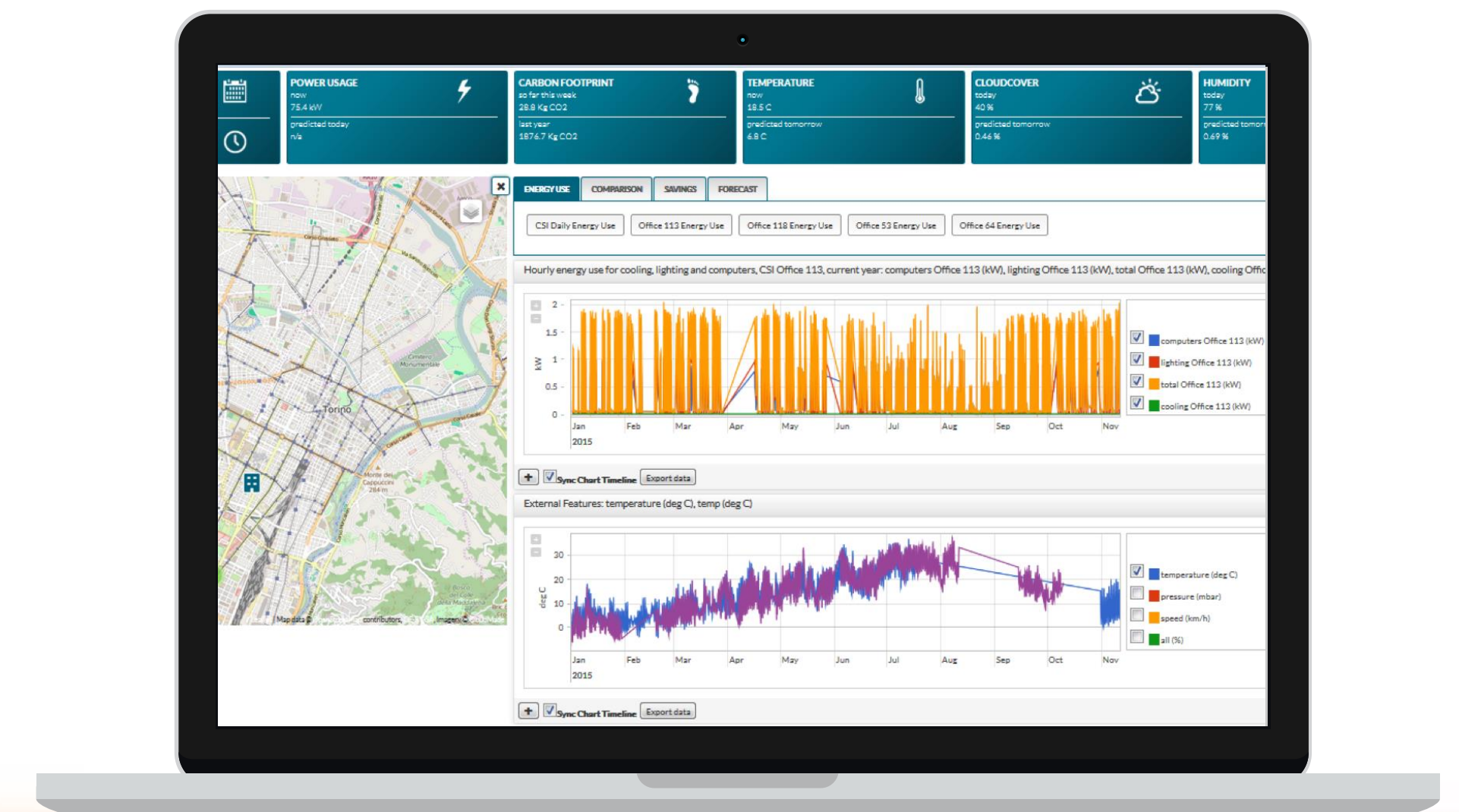
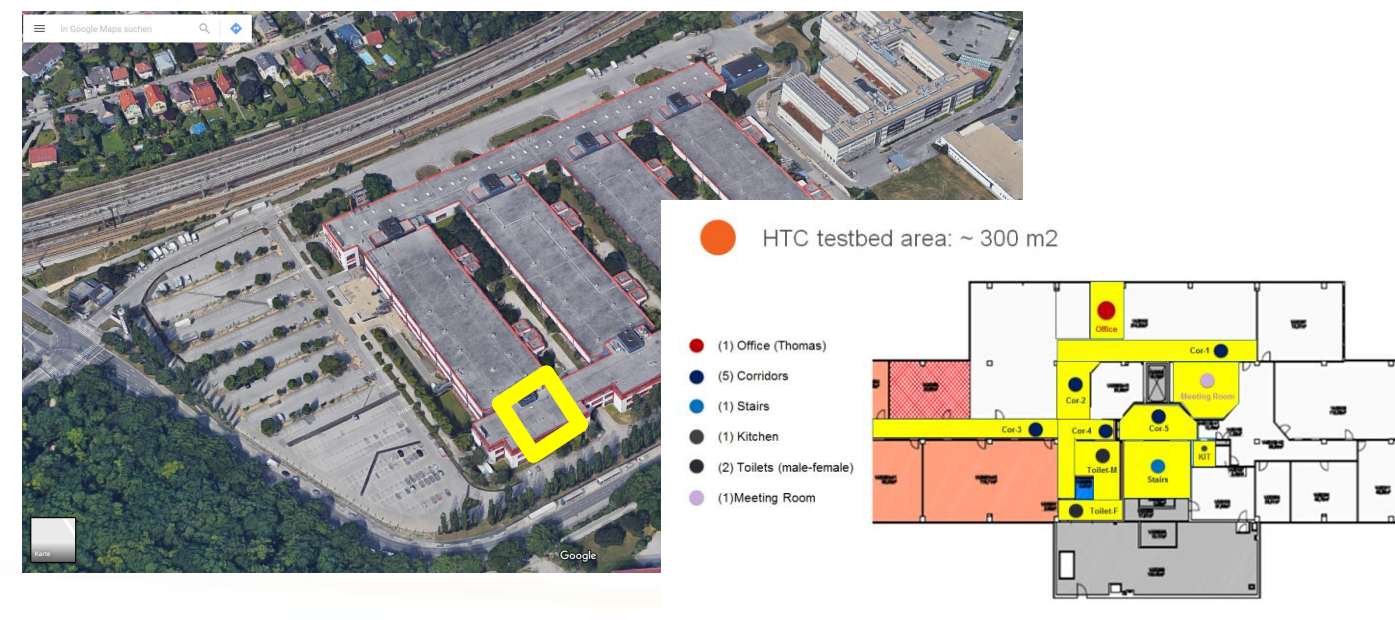


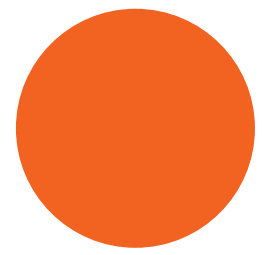


CUSTOMER

- **Minimal invest** for project start – project **financed by savings**
- Pilot to clarify savings potential & business case – **clear decision base** for invest
- Energy **savings of up to 50%** and **risk sharing** business model
- **Cutting edge technology** platform (Artificial Intelligence) & **behaviour modification** approaches
- **Green image** / reduction of carbon footprint

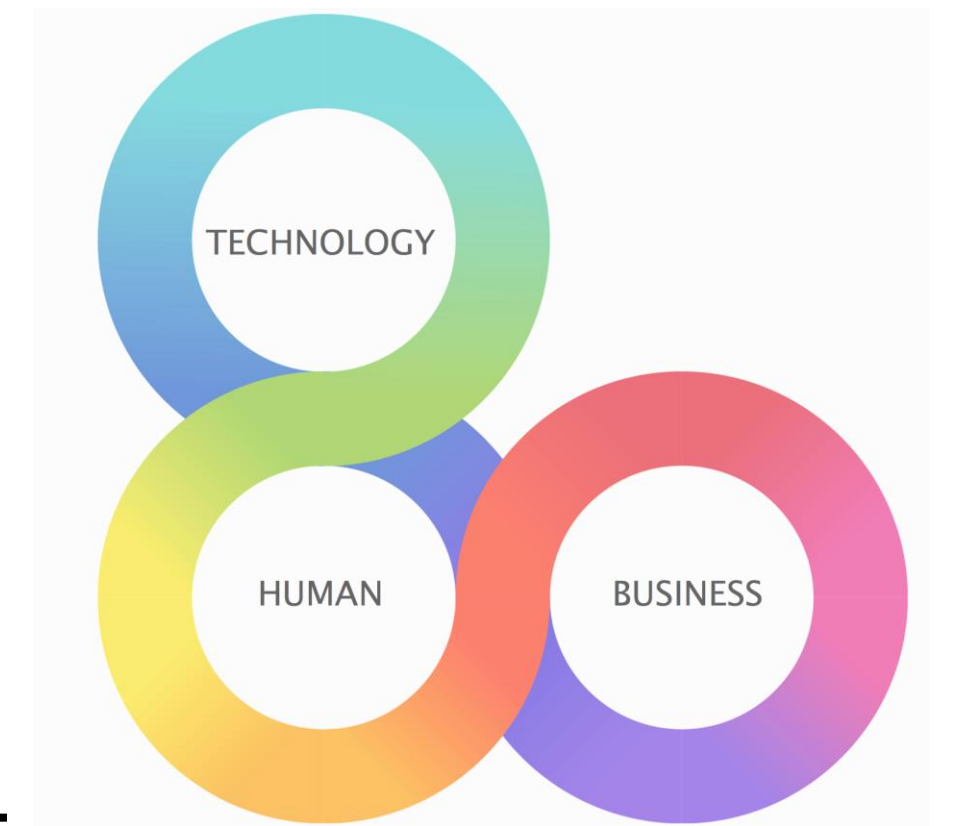
1st pilot customer:



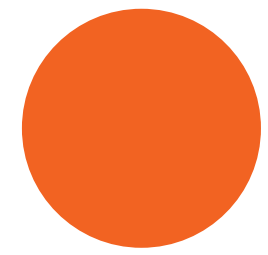


COMPETITIVE ADVANTAGES

Boosting energy efficiency by understanding the human needs and business challenges and push technology to its limits to intelligently serve them.



- 1 Ability to simulate shifting activities based on the forecasted consumption through **Artificial Intelligence technology based on EU FP7 funded research.**
- 2 Advanced analytics and technology based on **10+ yrs experience** in the field.
- 3 Value **co-creation and risk sharing** with our customers.
- 4 Better results thanks to deeper user experience on **informational and emotional** level giving end-users the chance to sense the infrastructure, data and her/ his impact on energy efficiency.



Seensy Solutions

iEMIS - intelligent
Energy Management
Information **System**

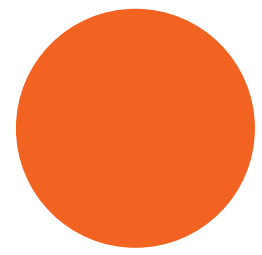
Power Campaigns

Demand Response -
Daily Optimization Plan

Understand your
inefficiency and
consumption behavior

Empower (end)user
engagement through
collaboration design

Optimize energy
consumption combining
different energy sources
(solar, wind, etc.)



Seensy iEMIS

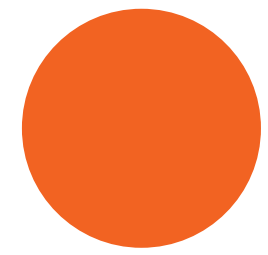
Benefits

Energy saving up to 48% by optimizing energy consumption.

Functions

- Monitor energy at different hierarchical topologies: office, sector, building, city, region ... depending on the user setup.
- Accurate forecasting based on various information sources.
- Identify trends in energy consumption by comparing various parameters (occupancy, cloudiness, etc.).
- Customized reports per case (based on our analytics tools).





Seensy iEMIS - Installation

HIGH TECH | **CAMPUS**

OFFICE CENTER

WIENERBERG, VIENNA



In figures...

Area coverage: 45.500 m² :

11.500 m² Office space

34.000 m² Production / Storage

~ 1.500 occupants

650 Parking spaces

20 Loading docks

Annual electricity needs ~ 7.964 MWh

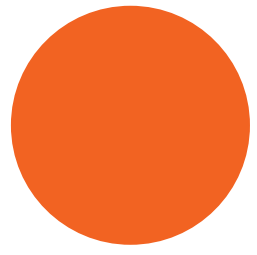
Seensy installation

Tested area: ~ 300 m²

52 sensors installed

Energy savings (electricity): up to 48%

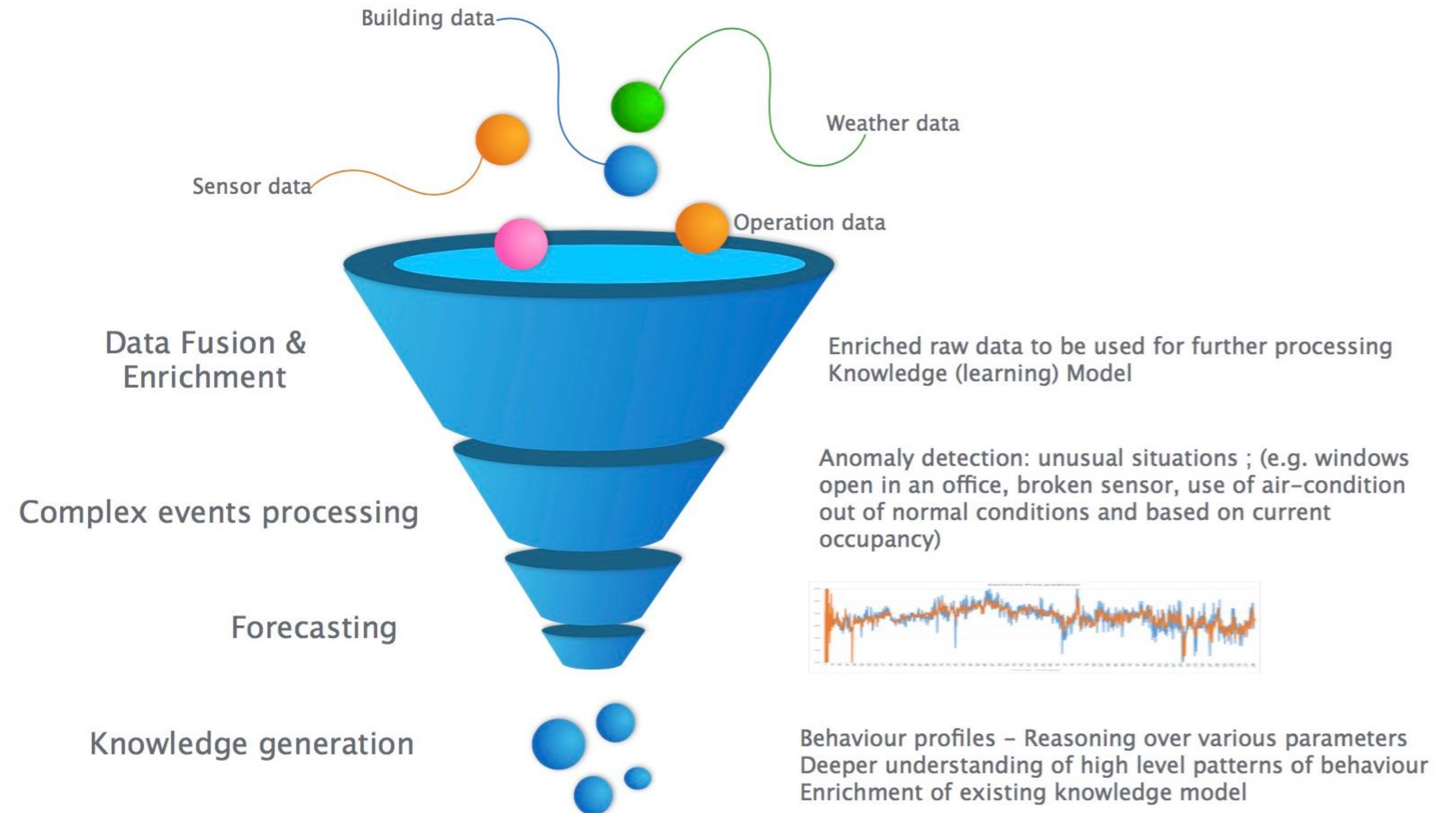
Estimated cost savings: ~ 232.962 € / Year

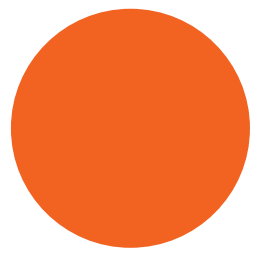


Seensy iEMIS - Intelligence

Advanced analytics, forecasting and learning behaviour

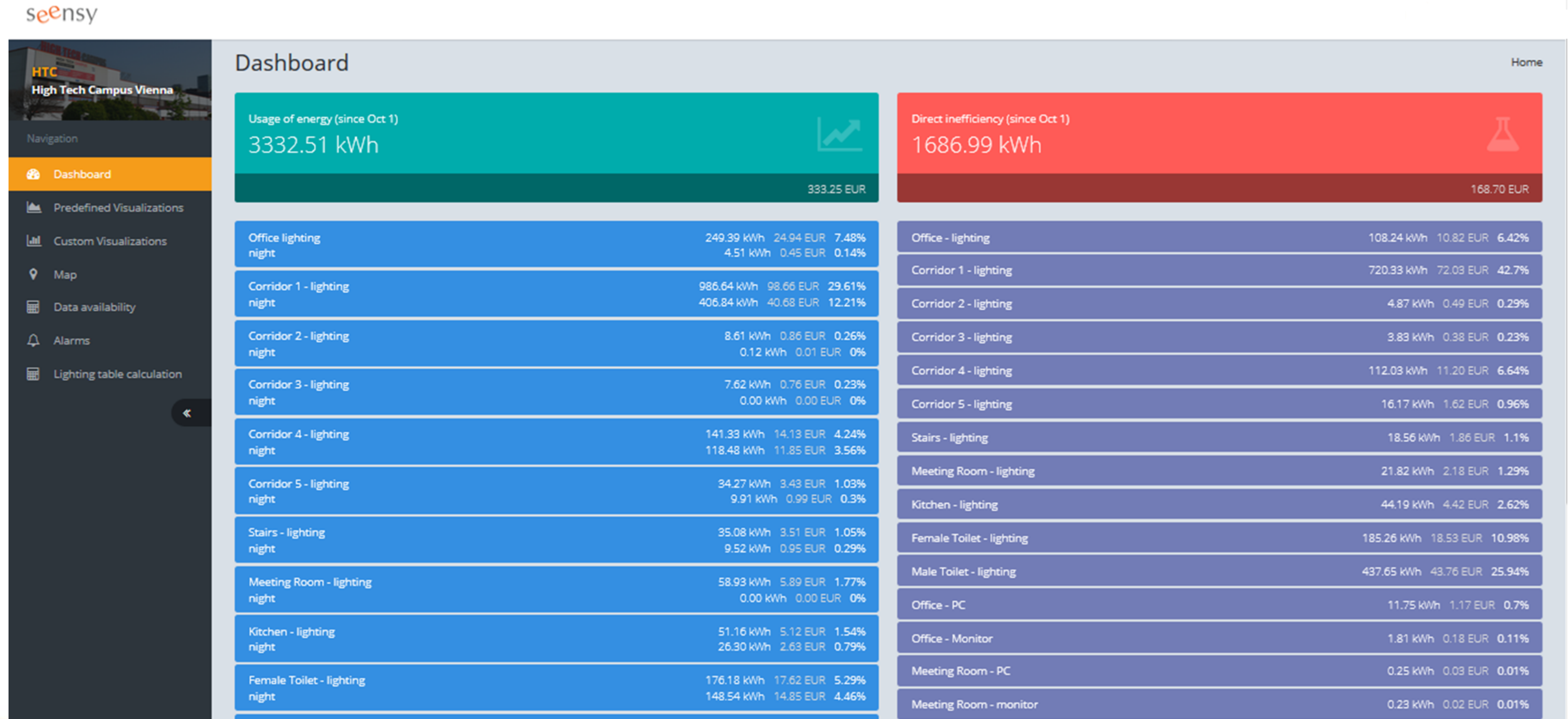
Fusing different
information sources
(internal and external context)

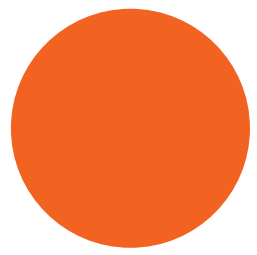




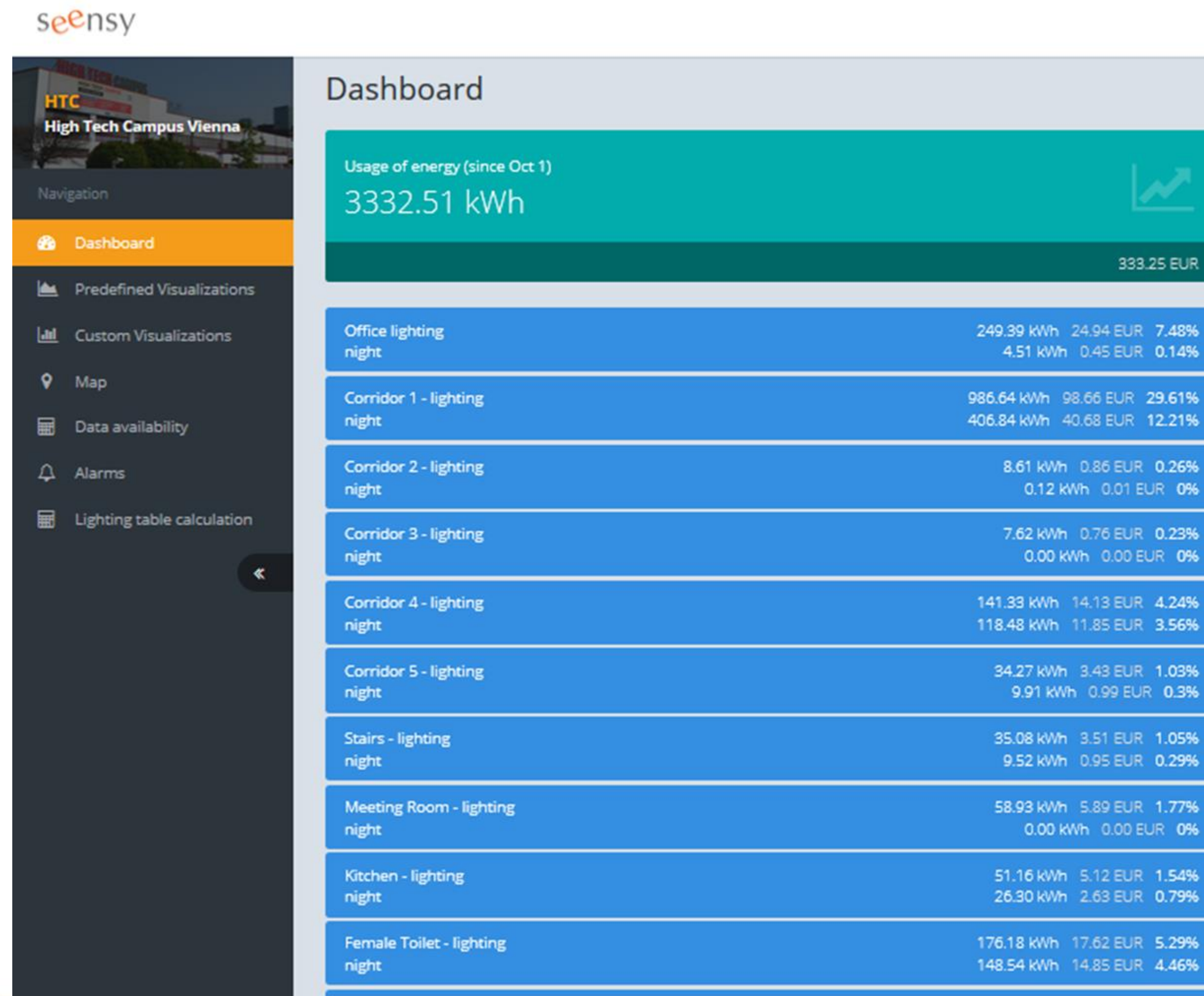
Seensy iEMIS - Dashboard

The dashboard gives a summary of energy consumption and inefficiency





Seensy iEMIS - Measuring Energy Footprint

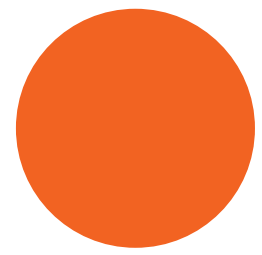


Total energy usage.

For each topology, Seensy presents consumption in different usage periods (day, night, holidays, etc.).

This gives the “energy footprint” of each topology.

Seensy supports different aggregations at different granularities (sections, building, neighborhood, etc.).



Seensy iEMIS - Measuring Inefficiency

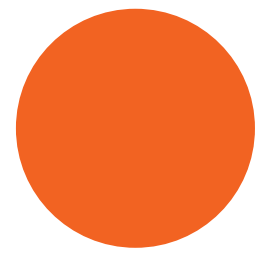
Total Inefficiency (energy spent and cost).

Inefficiency is the unnecessary energy spent.

Calculations are done based on complex scenarios and combinations for each topology:

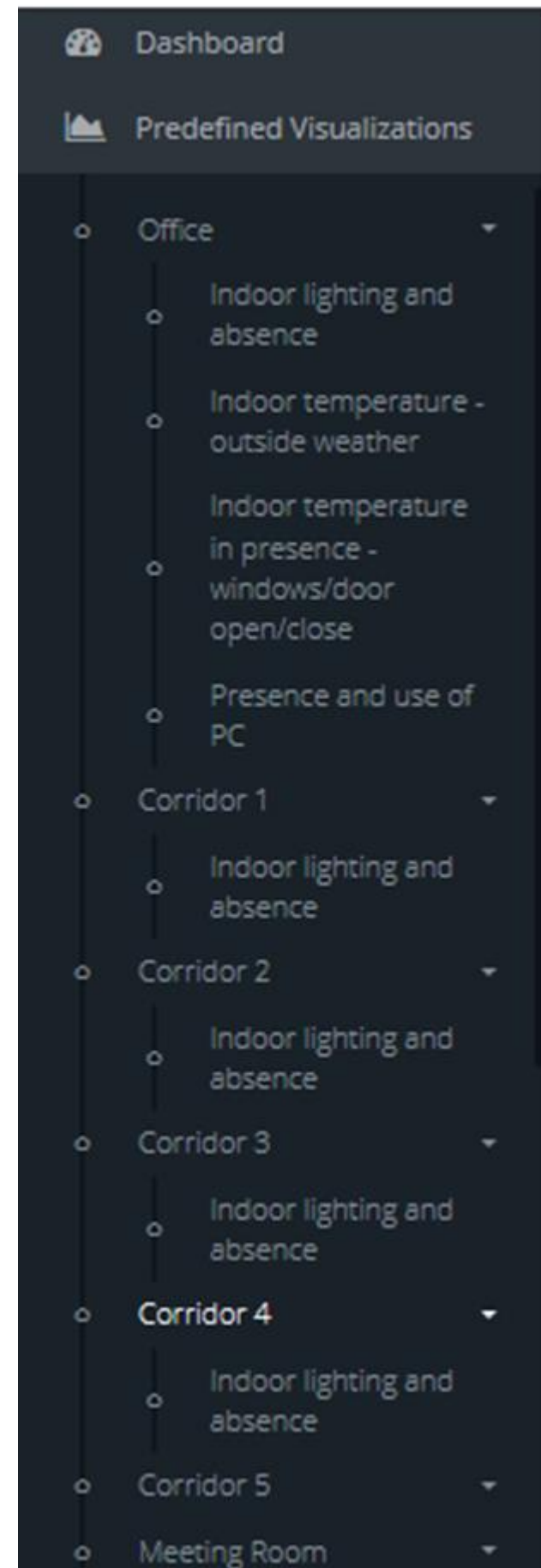
- Indoor lighting vs. Occupancy vs. physical lighting.
- Use of PC/ Monitor vs. Occupancy.
- Heating/cooling vs. Occupancy.
- Heating/cooling vs. Occupancy vs. weather conditions (in progress).





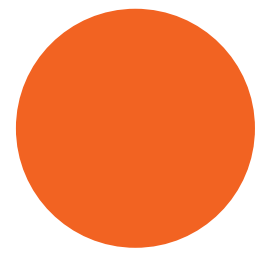
Seensy iEMIS - Predefined Visualizations

seensy



Predefined visualizations reports all possible scenarios in different topologies.

Aggregations/clustering and scenarios to be examined are configurable to different customer particularities and needs.

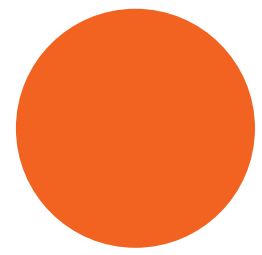


Seensy iEMIS - Predefined Visualizations (Reports)

Users can visualize energy behavior patterns and identify potential trends
e.g. excessive energy (lights, HVAC, other) spent at nights or holiday periods

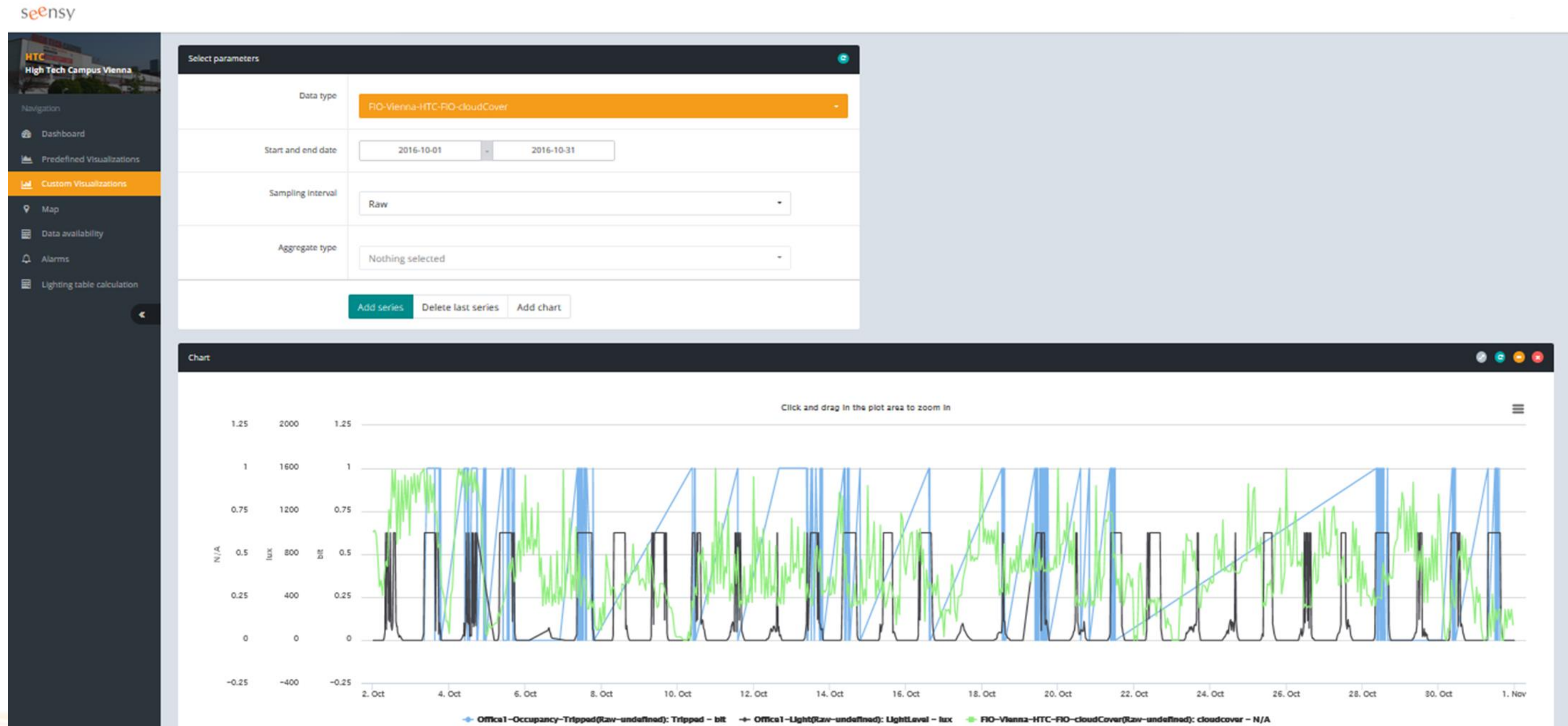
seensy

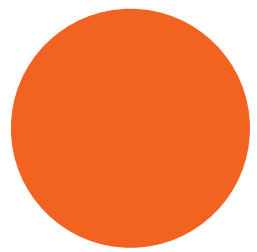




Seensy iEMIS - Custom Visualizations

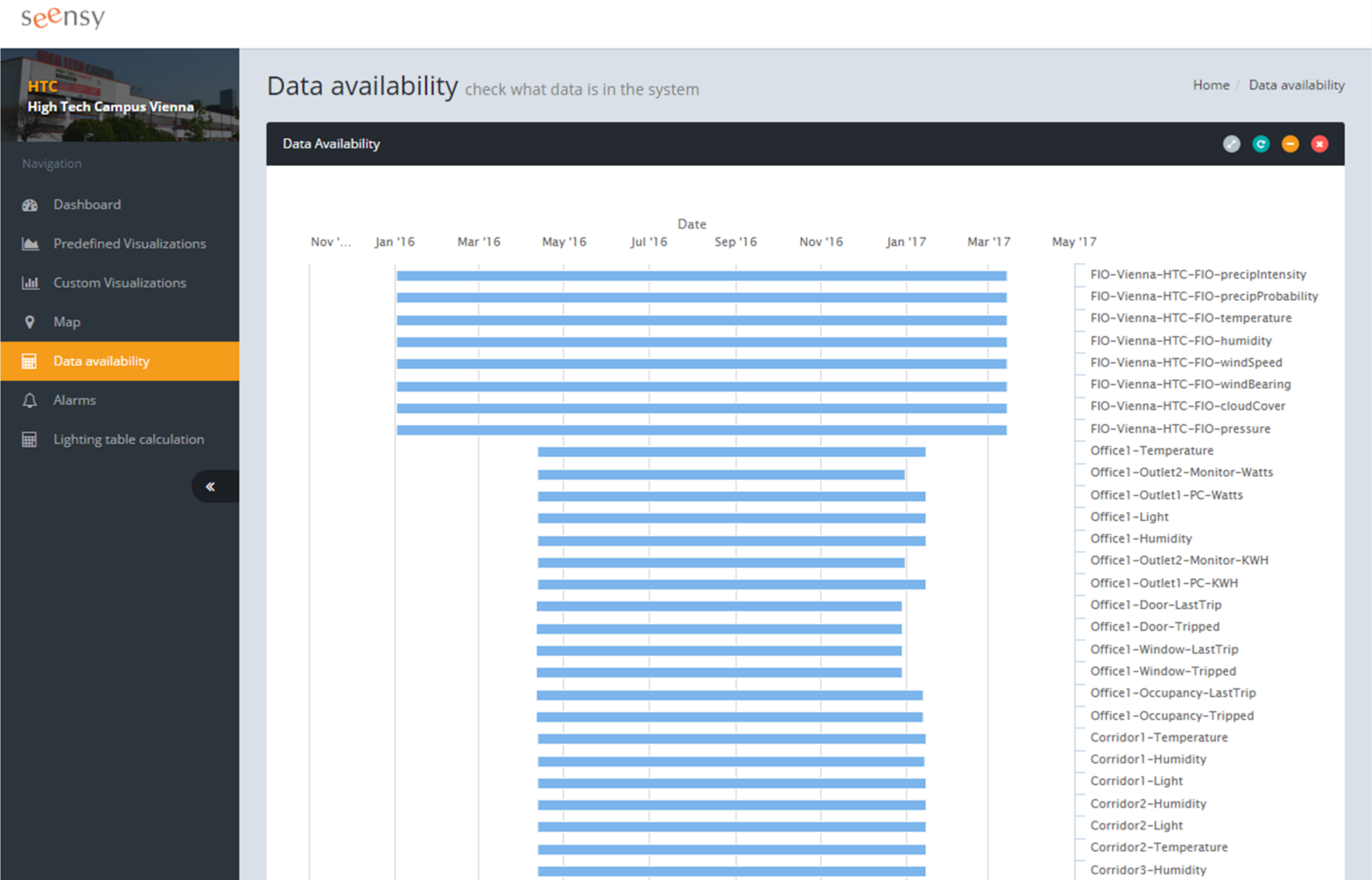
Custom visualizations allow for reporting and comparing different energy cost centers in different topologies (e.g. occupancy vs. light usage vs. cloud coverage)

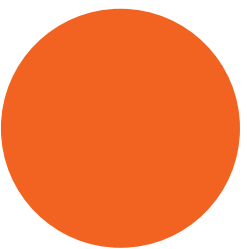




Seensy iEMIS - Data Availability

Data availability reports the flow of information from of all data sources





Seensy iEMIS - Alarms

Alarms can be set for both system and usage information.

- System information: Reporting data streams flow and potential problems.
- Usage information: Values below or above thresholds.

Usage alarms are configurable per case.

seensy

HTC
High Tech Campus Vienna

Navigation

Dashboard

Predefined Visualizations

Custom Visualizations

Map

Data availability

Alarms

Lighting table calculation

Alarm! Seensy WatchDog is not running! (last check: 3497 months ago)

OK! QMiner HTC is running! (last check: 3497 months ago)

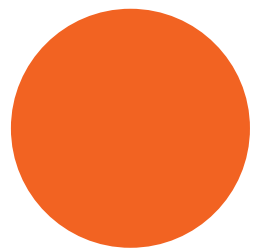
OK! DataCleaning HTC is running! (last check: 3497 months ago)

OK! Forecast.io HTC is running! (last component check-in: 3497 months ago)

Seensy Sensor streams

#	Sensor	Status	Last
0	Office1-Temperature	Alarm	4 months ago
1	Office1-Outlet2-Monitor-Watts	Alarm	4 months ago
2	Office1-Outlet1-PC-Watts	Alarm	4 months ago
3	Office1-Light	Alarm	4 months ago
4	Office1-Humidity	Alarm	4 months ago
5	Office1-Outlet2-Monitor-KWH	Alarm	4 months ago
6	Office1-Outlet1-PC-KWH	Alarm	4 months ago
7	Office1-Door-LastTrip	Alarm	4 months ago
8	Office1-Door-Tripped	Alarm	4 months ago
9	Office1-Window-LastTrip	Alarm	4 months ago
10	Office1-Window-Tripped	Alarm	4 months ago
11	Office1-Occupancy-LastTrip	Alarm	4 months ago
12	Office1-Occupancy-Tripped	Alarm	4 months ago
13	Corridor1-Temperature	Alarm	4 months ago
14	Corridor1-Humidity	Alarm	4 months ago

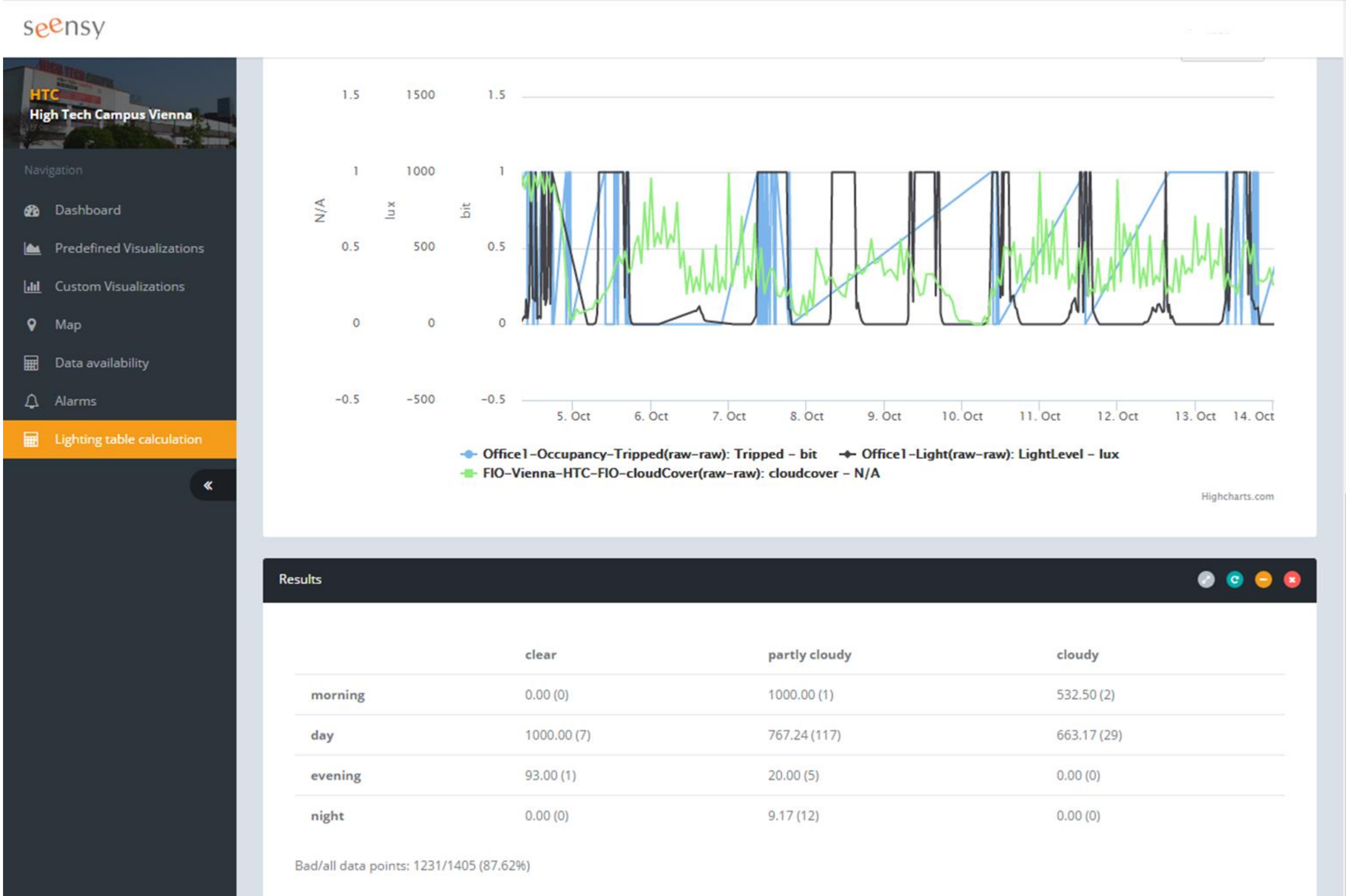
seensy

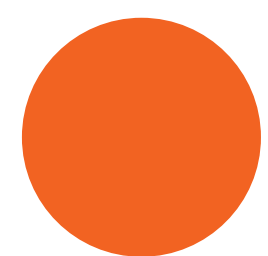


Seensy iEMIS - Physical Lighting Model

Seensy creates a physical lighting model for each topology, which is used in defining the lighting inefficiency.

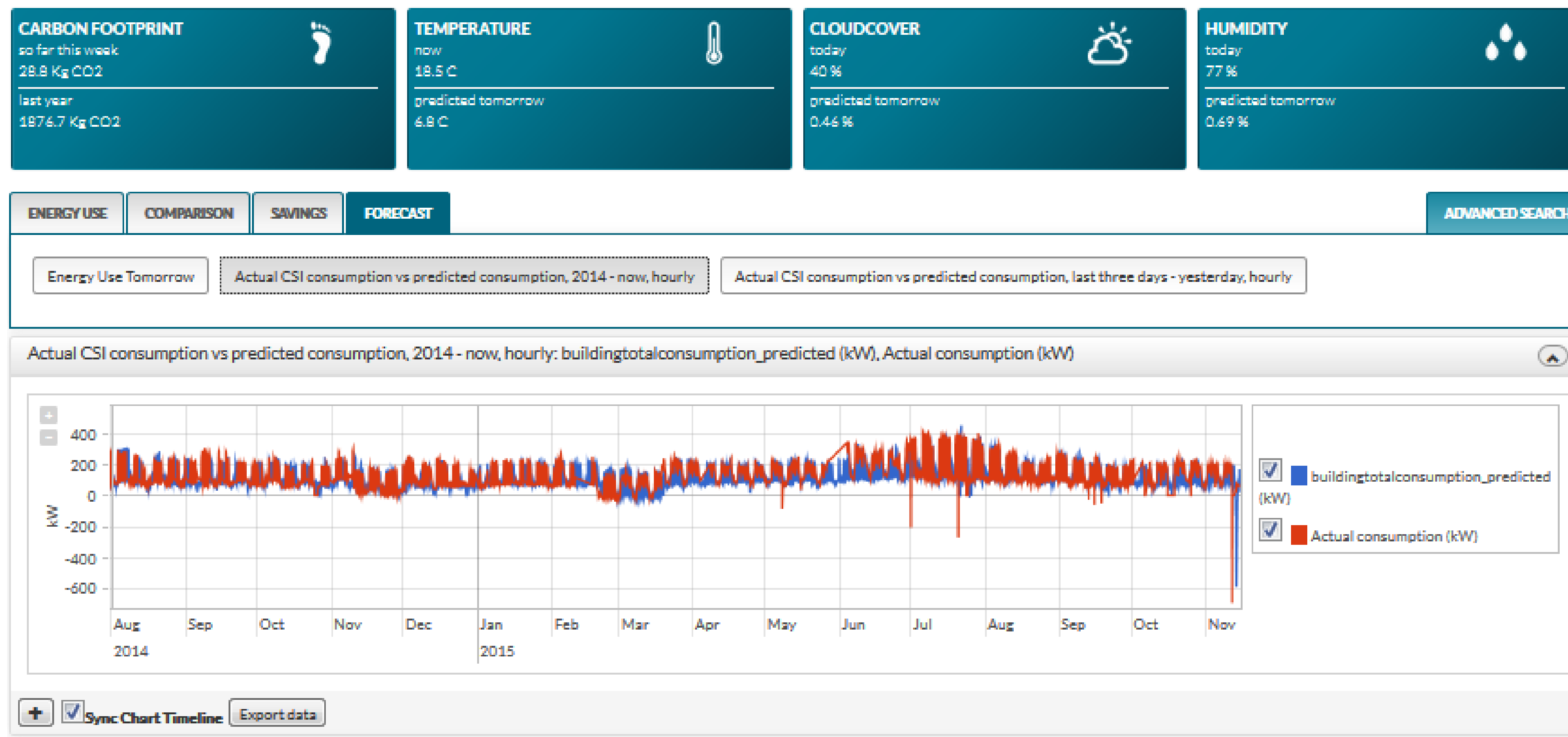
Lighting model considers both external (cloud coverage) and internal light levels in different timeframes.



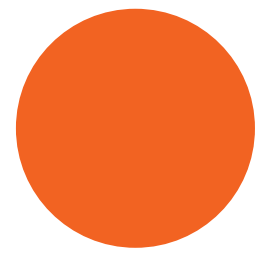


Seensy iEMIS - Forecasting

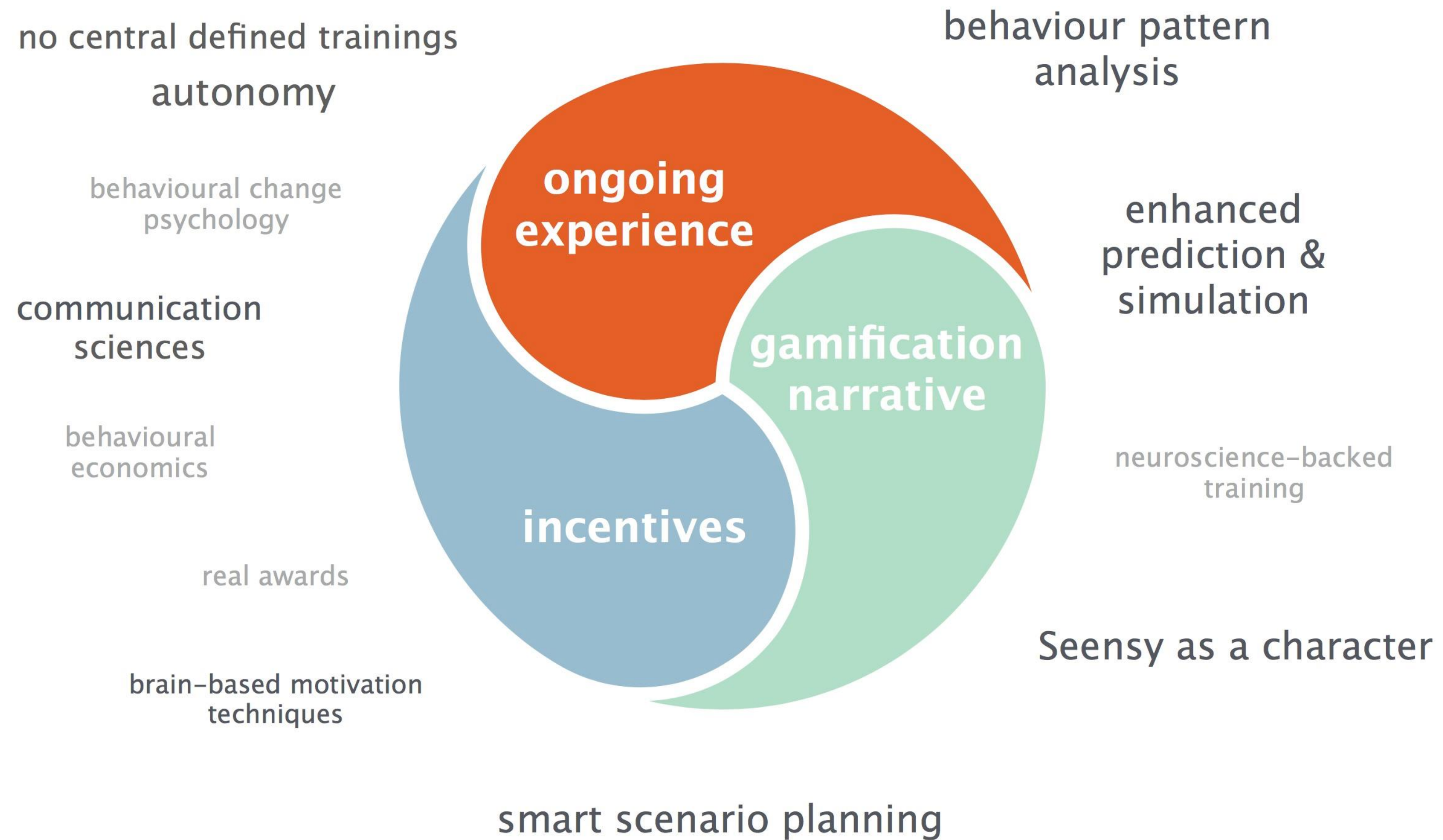
Seensy applies complex forecasting algorithms combining different information sources (weather, behavior, etc.)

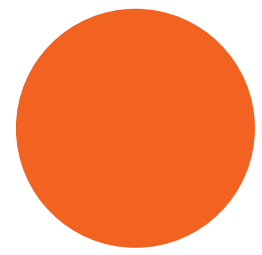


Data and interface are from the initial NRG4Cast EU project in 2015.



Seensy Collaboration Design in Power Campaigns





SEENSY Demand Response - Daily Consumption Plan

Optimized usage of Renewable Energy Installations through Seensy forecasting and analytics capabilities.

Solution in concept

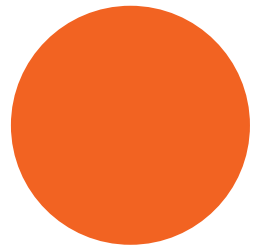
Benefits:

- Optimized usage of RES and Conventional Energy considering multiple parameters and forecasts (demand, energy prices, weather, etc.).
- Energy cost reduction / Energy gains (through Energy selling to the Grid).
- Improved demand response in buildings.
- New business models for prosumers in Energy Management ("Energy Trading").

Functions:

- Seensy analytics are able to forecast tomorrow's demand based on energy consumption profiles, weather forecasts, forecasted energy prices.
- Seensy creates the "energy consumption plan" for the next day. This will result in hourly or quarterly periodic plans for using electricity either from RES or from the Grid. RES Energy that will not be used will be sold to the Grid.
- This daily plan is updated during the day with new suggestions, based on collected data streams.





SEENSY for ISO 50001

ISO 50001-2011

- Energy review
- Energy baseline
- Energy Performance Indicators

- Implementation & operation
- Documentation, recording

- Monitoring, measurement and analysis

- Internal audits
- Corrective actions
- Preventive actions
- Control of records

Management review

PLAN

DO

CHECK

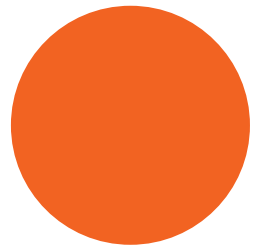
ACT

Seensy

- Performance simulation
- Define complex scenarios for energy usage
- Roadmap with PIs for energy efficiency

- Roadmap implementation
- Customized reports
- Trend analysis
- Behaviour analysis
- Anomaly detection
- Forecasting
- Power campaigns

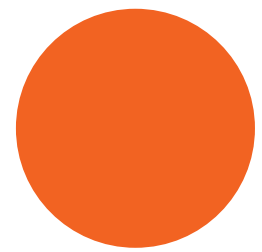
- Power campaigns
- Action plans (system, user)
- Assess energy performance through reports and comparison analysis



SEENSY for ISO 50001

Supporting ISO 50001-2011 implementation through automation (information processing) and user engagement

	ISO 5001-2011	EMIS	Seensy (additional to EMIS)
Plan	• Energy review • Energy baseline • Energy Performance Indicators	• Define control points • Performance indicators • Alerts	• Performance simulation • Define complex scenarios for energy usage • Roadmap with PIs for energy efficiency
Do	• Implementation & operation • Documentation, recording	• Monitoring • Control • Reporting	• Roadmap implementation • Customized reports • Trend analysis • Behaviour analysis • Anomaly detection • Forecasting • Power campaigns
Check	• Monitoring, measurement and analysis		
Act	• Internal audits • Corrective actions • Preventive actions • Control of records	• Automation-control • Assess basic energy performance	• Power campaigns • Action plans (system, user) • Comparison analysis and learning



References – Seensy iEMIS

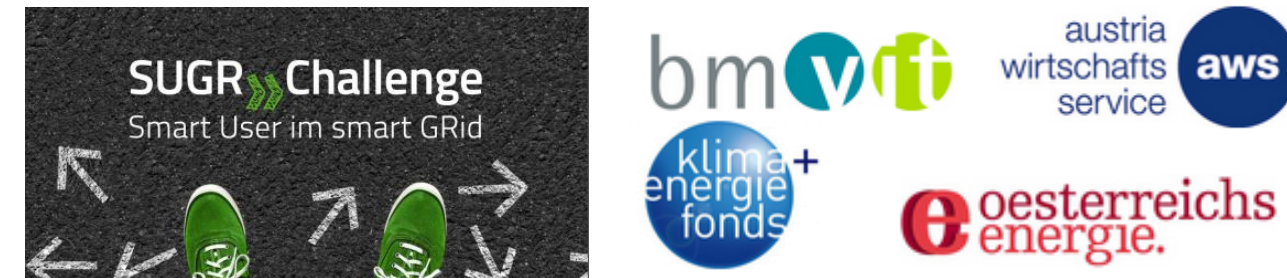
Current Installation

Pilot project



Awards, etc.

3rd place Sugr Challenge



Climate-KIC



Core technology with “intelligence components” is used by:

Bloomberg



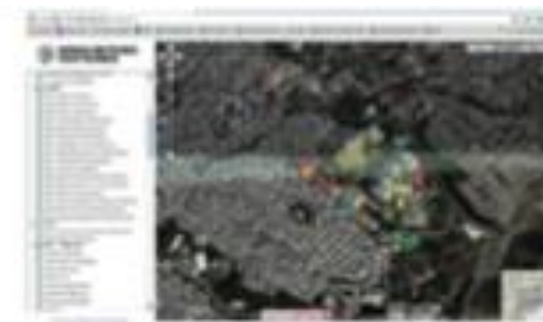
The New York Times



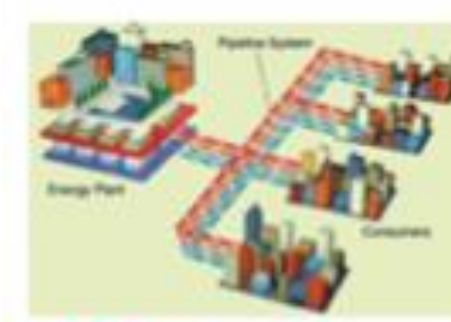
Seensy iEMIS is the solution was tested in the context of NRG4Cast FP7 project by:



Detailed consumption monitoring in 1 office building (Turin).
Electrical and district heating in 34 Turin public owned buildings.



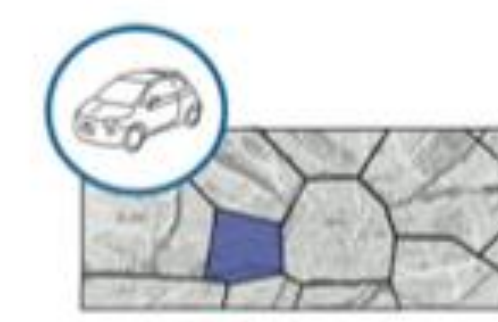
Electricity consumption in 47 buildings.
Thermal comfort in 1 building.



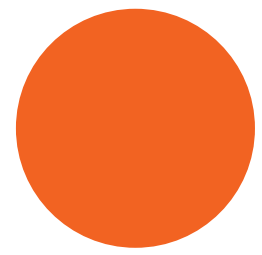
Monitoring and predicting demand in district heating.



Street lighting management



Smart charging algorithms for electric vehicles



TEAM & FOUNDERS DREAM

Save energy by
understanding,
identifying & avoiding
inefficiencies in
energy consumption!

Simon Mokorel
CBDO
Business Development
>20 yrs R&D in automotive,
starting-up companies
in product design and regional
development



Thomas Fiedler
CEO
Marketing & Sales, Partner Management
>15 yrs re-structuring, start-up & operation
of ICT companies in B2B (as CEO)



Kostas Kalaboukas
COO
Product Development, Operations
>15 yrs project & quality mgmt.
in complex European ICT projects



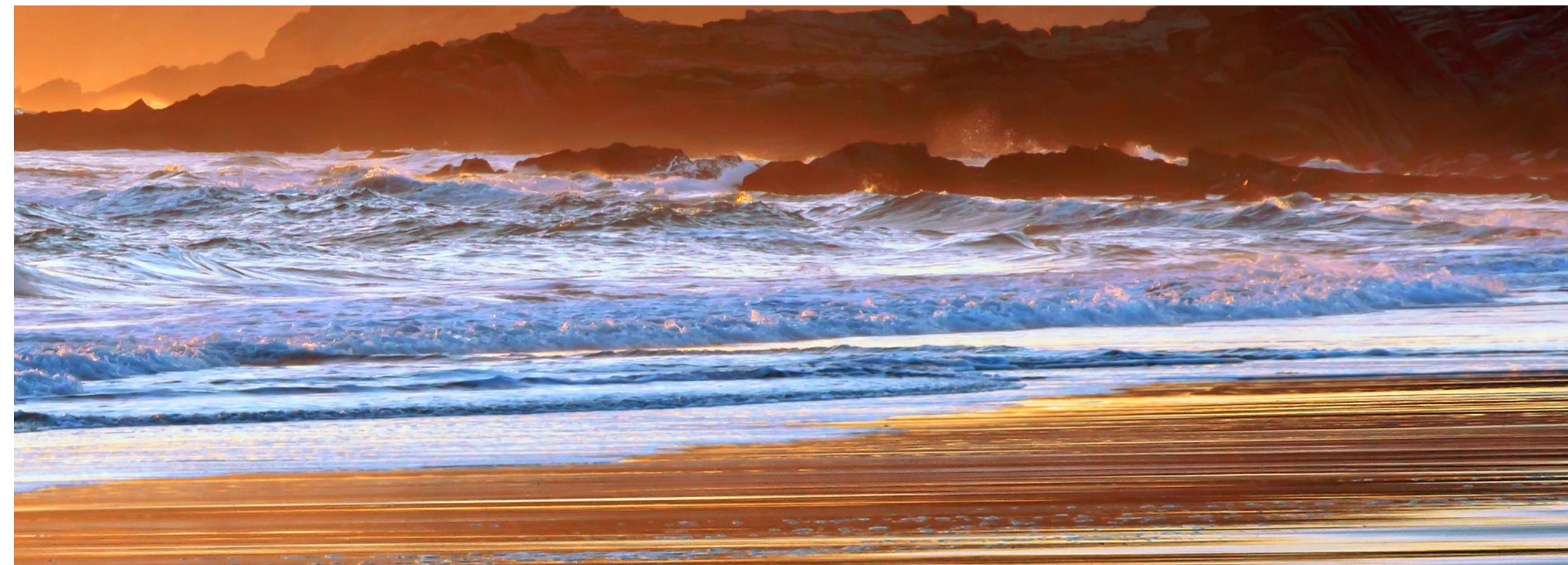
Mitja Jermol
CTO
Technology, AI
>15 yrs research & development in
cybernetics and artificial intelligence,
head of JSI centre for knowledge transfer and
UNESCO chair for open education



Urska Starc-Peceny
CCO
Strategy & Communication, Power Campaigns
>20 yrs in strategy & communication in innovation,
co-founding companies in Europe and Middle-East



Be part of this evolution.
Change the way
energy efficiency is sensed!



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