Title: Digital Intelligence in Facility Management

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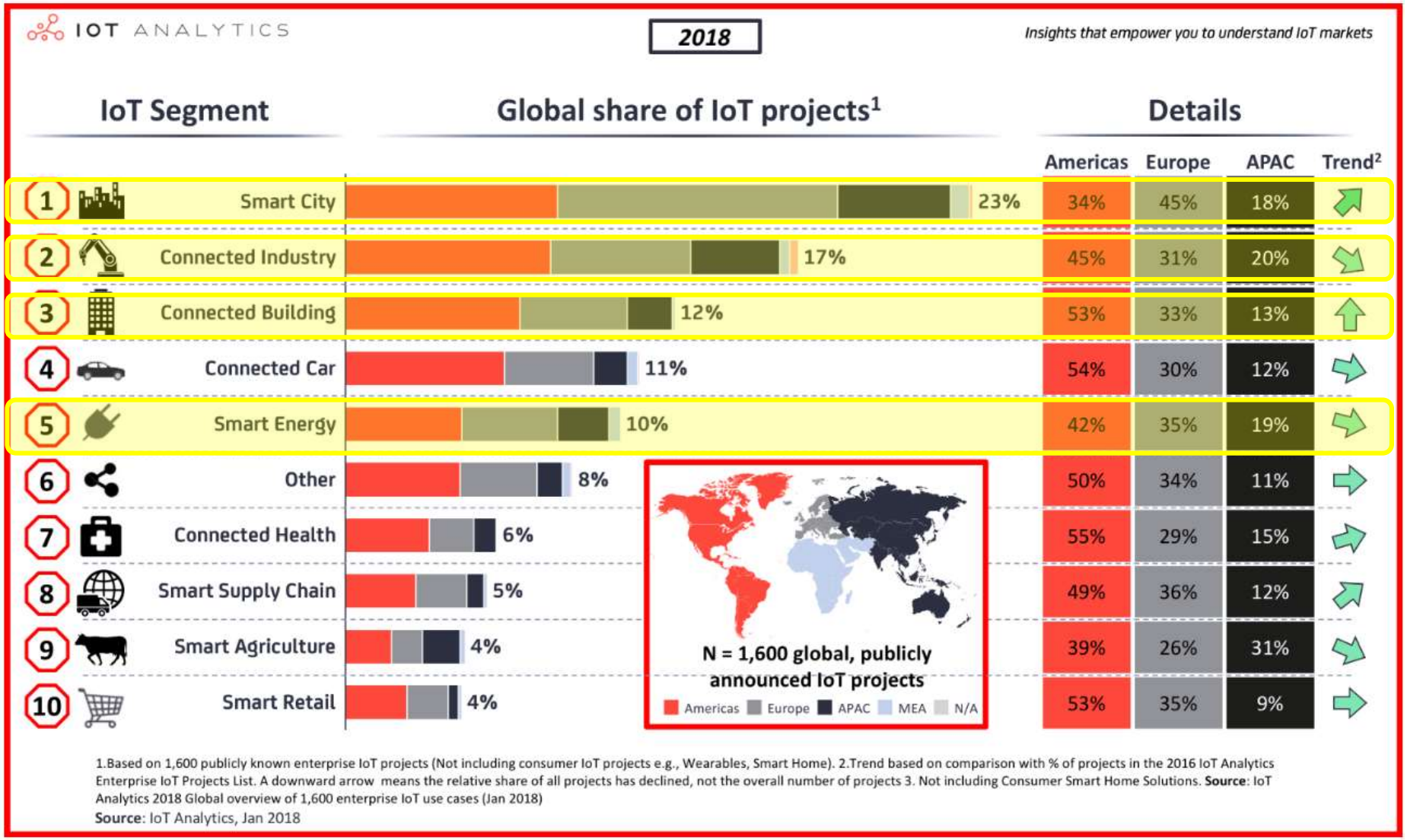
Dimitris Zacharias, Energy Services Manager ENGIE Hellas

SMART INFRASTRUCTURE

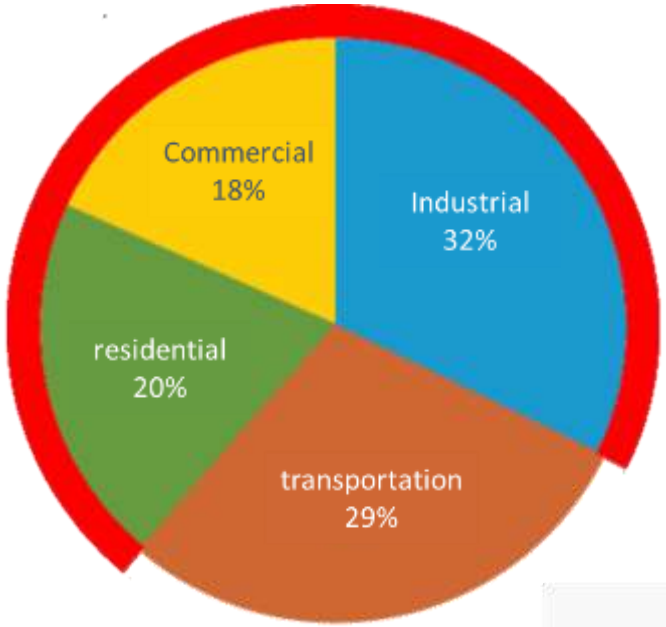
The far front runner sector that benefits from IoT evolution

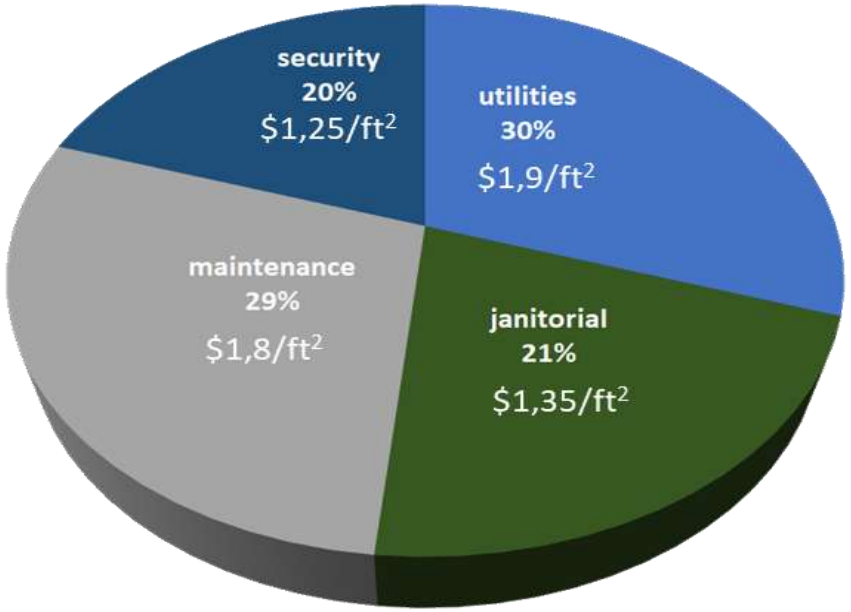
62% of all IoT projects in 2018 targets to FEM



Smart Infrastructure management

a complex art with many factors to account for in order to reduce operating cost





The Building sector is the largest consumer of energy globally

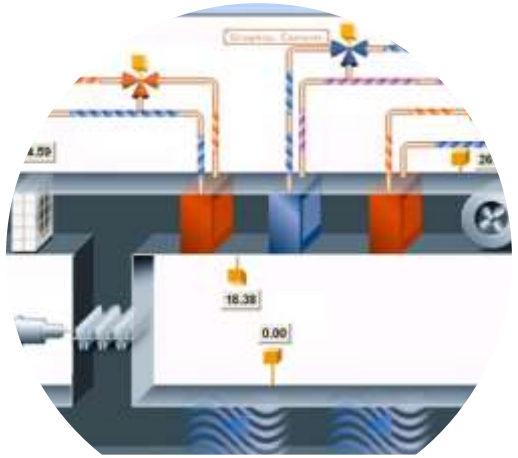
Utilities, Maintenance, Janitorial and Security are almost equally sharing the total operating cost of buildings

TODAY

Many independent systems for managing the operations of buildings and their equipment

Space Occupancy

- Tough to find
- Require combination of technologies



Building MS

- Closed, vendor lock in
- Non-customizable
- Lack of connectivity and interoperability

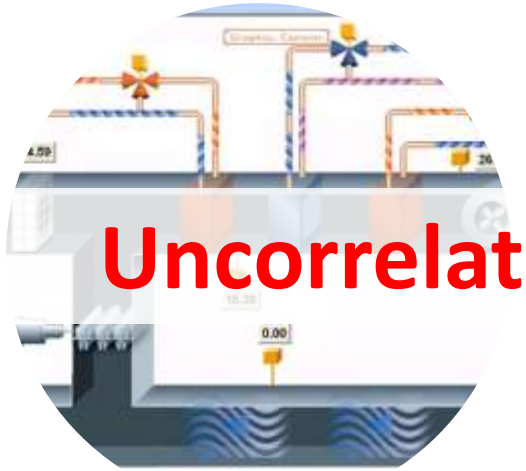
Lighting MS

- Closed, vendor lock in

Energy MS

- Expensive
- Limited customizability
- Lack or real-time
- Lack of forecasting intelligence

TODAY



Uncorrelated Systems

Duplication of equipment
Increased Setup cost
Increased Monthly Cost
Confusing, multi-tool based facility management
Inability to apply AI for predictive maintenance and automation

THE FUTURE

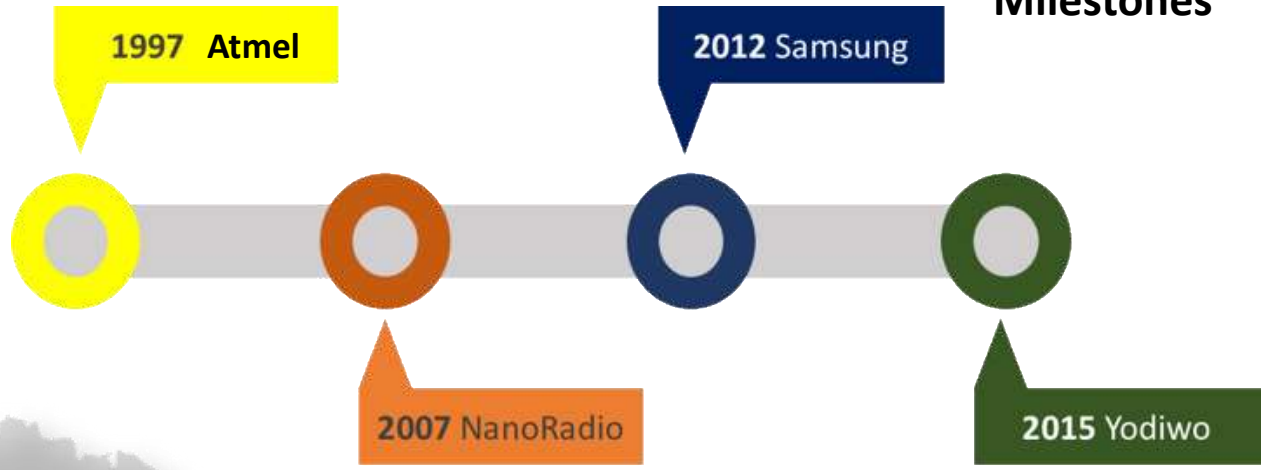
delivered by yodiso

Integration of Services under a single FM platform with the IoT paradigm

YODIWO ABOUT

We deliver AI-driven Integrated Facility and Energy Management Solutions based on a market-leading IoT platform

Milestones



HR

Our personnel comprises 30 multi-skilled professionals with a high level of education (50% Ph.D. CS, 30% MSc, 20% University graduates). A pool of 3-5 talented interns is constantly maintained and 60% of them come on board 6 months after starting with Yodiwo

Member

ENDEAVOR GLOBAL
HIGH-IMPACT ENTREPRENEURSHIP

Certifications

Information Security Management System 27001 Certified

CERTIFIED ISO 9001:2015 COMPANY

YODIWO PLATFORM ENABLED SOLUTIONS

Smart Infrastructure everywhere

/ 1
Smart cities / Smart infrastructure

Smart Lighting
Waste Management
Smart Parking
Air Quality

/ 2
Smart Buildings

Facility Management
Integrated Energy Resource Mgmt
'Cloudification' of PLC & Scada systems
Predictive Maintenance
Asset Tracking
Smart Energy

/ 3
Smart Home

Living quality
Energy Management

/ 4
Smart Factory

Production Flow monitoring
Smart Energy
Supply Monitoring

/ 5
Automotive

Fleet health monitoring
Predictive maintenance

/ 6
Retail

Computer Vision for in-store insights
Asset tracking

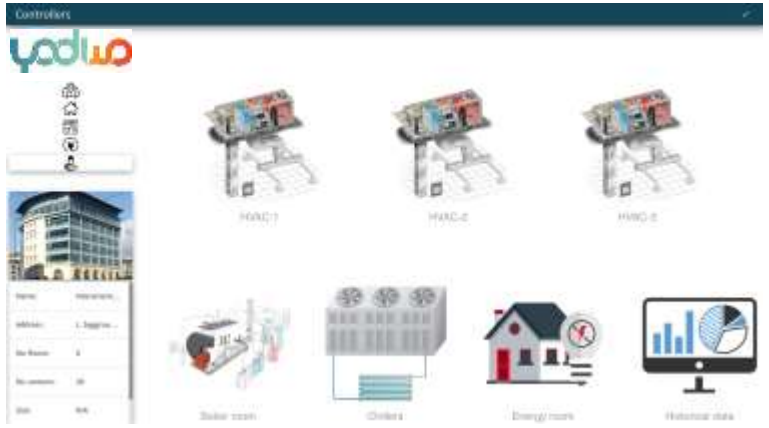
Smart Infrastructure Management

Overview Dashboard

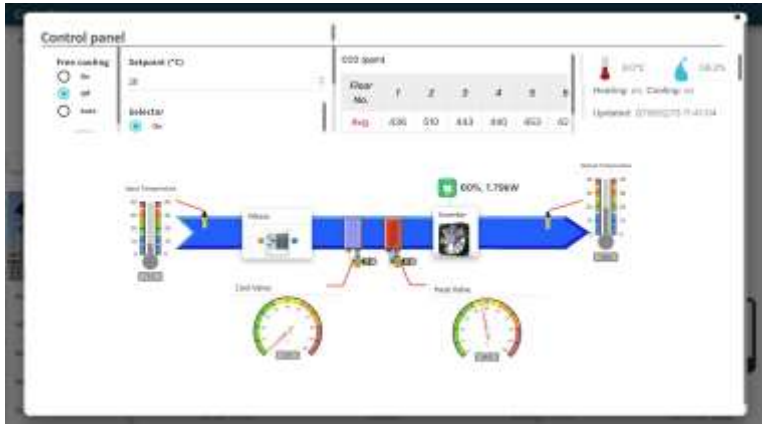
Floor Plan Dashboard

*Measurement and Verification plots for ISO 50001 reporting**

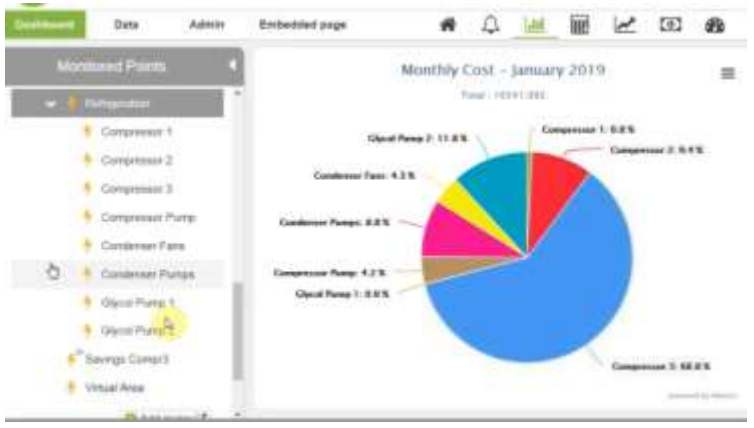
Diverse Systems Dashboard



Specific Controller Dashboard



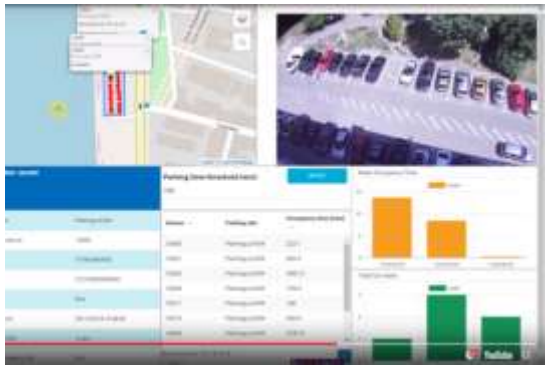
*Cost break down analysis **



Smart City Platform

yodibin

yodipark



yodilighting

yodiaqm

ENGIE Connect

Transforming the Future of Facility & Energy Management

About ENGIE

ENGIE Group

>160,000

Employees

€60.6 billion

Turnover (2018)

70

Countries of presence

ENGIE Hellas

>220

Employees

€17.3 million

Turnover (2018)

19

Years of presence in Greece

CERTIFICATIONS:

ISO 9001:2015

ISO 14001:2015

ISO 50001:2018

QHSAS 18001:2007

ENGIE Strategy
Our New Strategy – A new Wave in the Energy Transition

Decarbonization

Digitalization

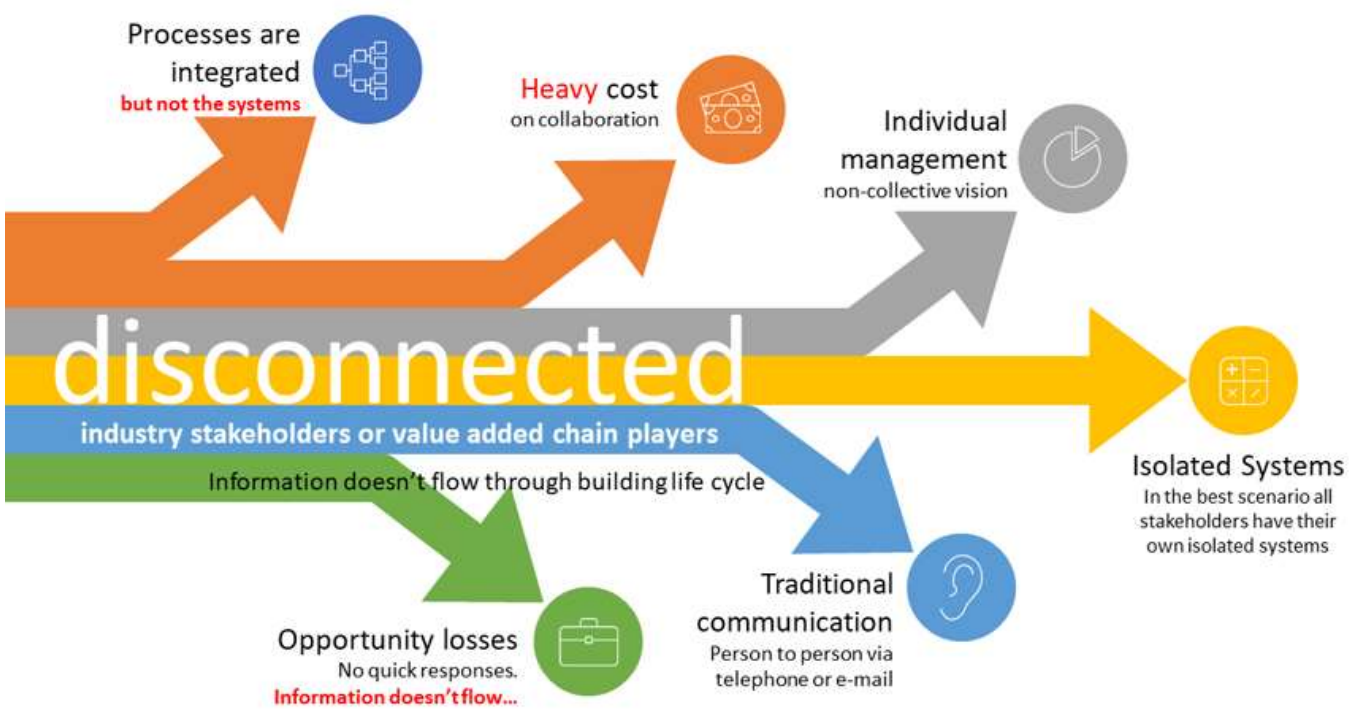
Decentralization

Our Ambition: Be World Leader in the **Zero-Carbon Transition "As a Service"**

Traditional Disconnected business model

Currently, the relationships of customers with their suppliers have always been very sporadic and based on a standard agenda. The same happens in FM sector:

- Routine tasks of maintenance, cleaning, pest control, security…
- Breakdowns, damages…
- New Projects…
- Contract issues…
- Meetings, complaints…
- Getting the bill…



Existing Situation – The need for something new

Multiple Siloed FM systems limit the levels of potential cost savings from:
utilities, **equipment maintenance**, **unmanned security methods**, and **janitorial services**

Energy Management Systems

Space Occupancy Systems

Equipment Maintenance Systems

Lighting Systems

The Need…

Integrated Customer Services under a single FM platform with the IoT paradigm

Digital, the driving force of transformation

Digital is not only what drives us to transform the organization and corporate culture, it is also the driving force of change for:

- FM Services: managing complexity and optimizing the assets.
- Energy Management Systems
- Customer relations
- New businesses
- Decision-making tools
- Agility and flexible approach
- Reducing risks
- Cost savings

The Solution – ENGIE Connect powered by Yodiwo

An **edge computing IoT solution** for:

Facility Management, Energy Management, Smart Cities Applications

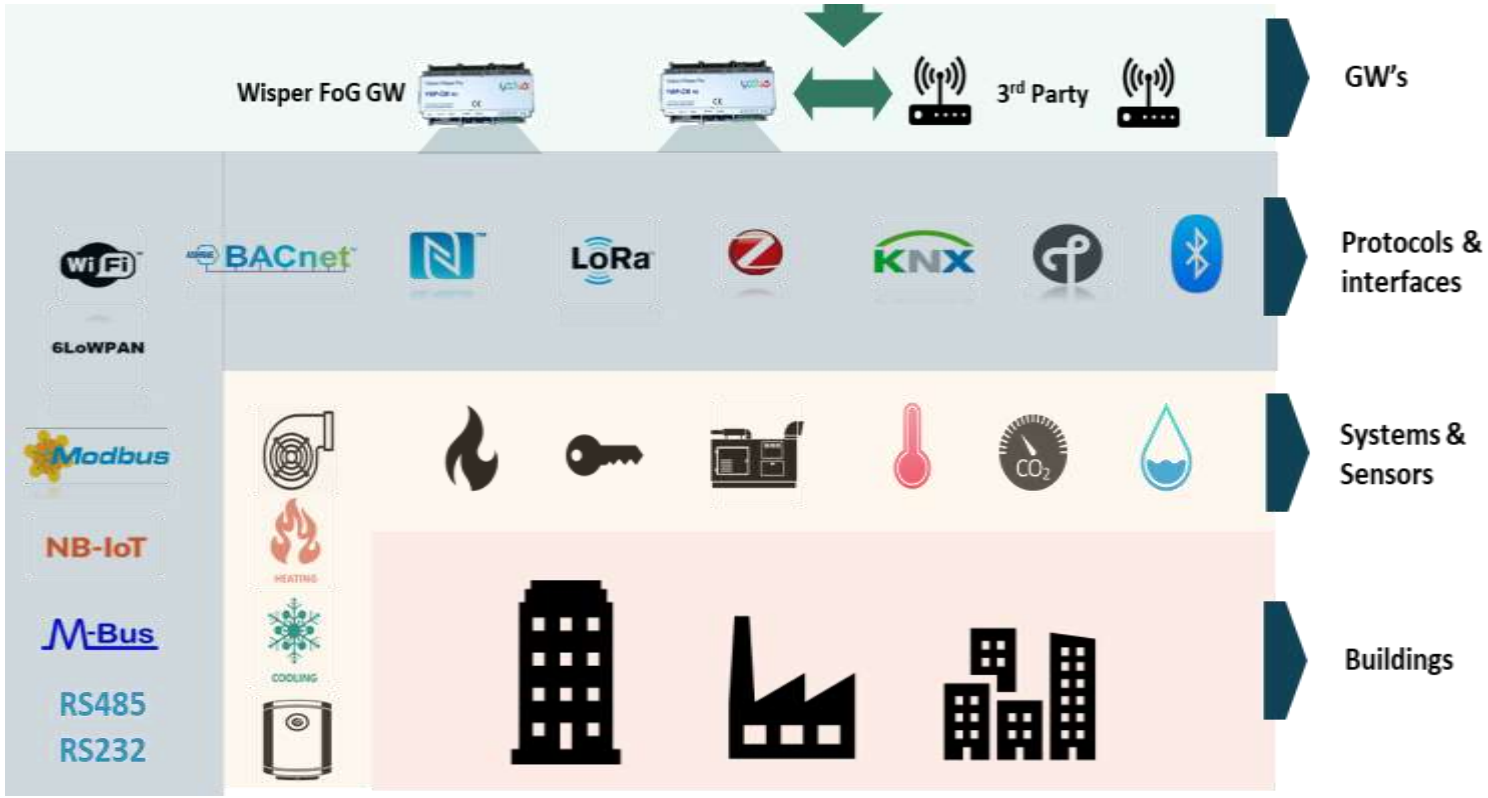
Powered by Yodiwo

unifies heterogenous smart building controllers, sensors, meters & other data

integrates the ability of monitoring, alerting, energy profile building, human actions and machine driven energy management

aims to energy optimization, CO2 emissions reduction, wasted energy minimization, savings creation

ENGIE Connect – The high level solution architecture



- The platform connects with building systems and sensors through Yodiwo Wisper or 3rd party GWs which provide protocol bridging and sensor/system/controller aggregation.
- It is an "edge computing platform", that localizes the processing of the data at the hardware level

The innovative aspect
Finalist in Innovation Trophies

- High edge computing
- Hardware agnostic solution
- Unlimited expandability
- Local data processing → reduced communications' bandwidth, enhanced security and privacy
- Application of machine learning algorithms
- Solution as a Service Model, staying loyal to ENGIE's Strategy

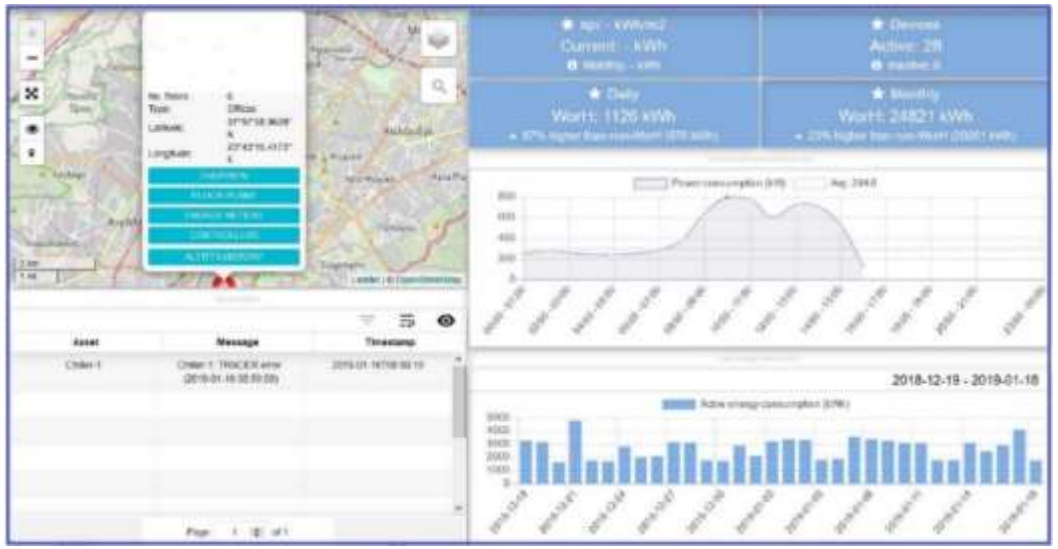
ENGIE Group Innovation Trophies 2019

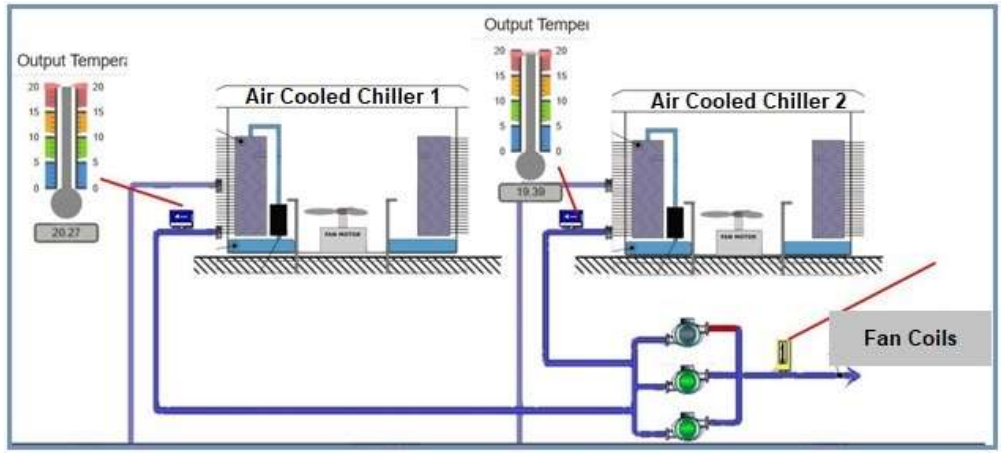
- Goal?

Highlight innovative projects and ideas in 6 categories:

New business / **Operations, Techniques & Technology** / Customer Relationships / Business Development / Management & Support / Success Story

The platform – Facility & Energy Management



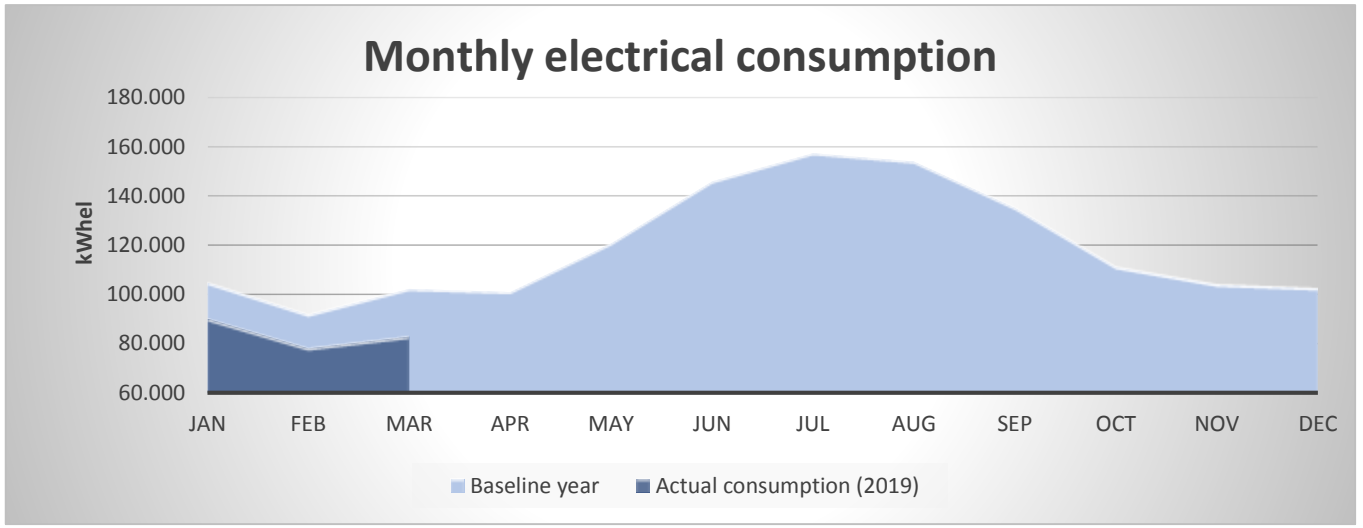


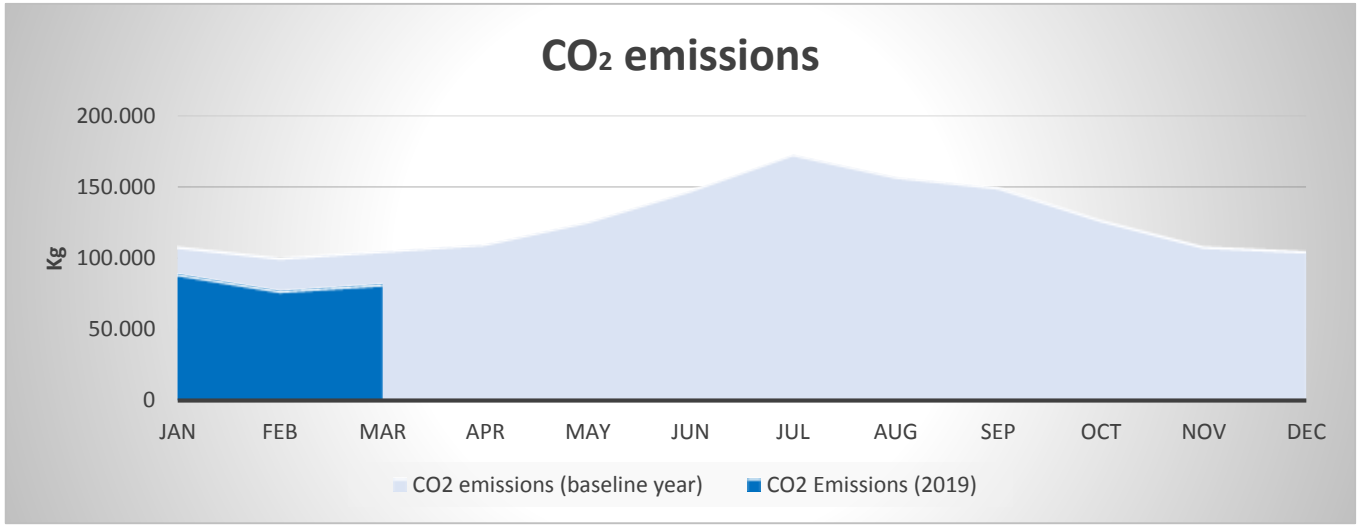
The user of the platform can monitor the following data about the installations of the building:

- active number of devices, current/daily/monthly energy, power consumption diagram
- overall statistics of the building
- diagrams for each floor and for all KPIs
- all the onboarded devices of the building, asset performance, real-time behaviour
- temperature of the rooms
- Help buttons notifications & window sensors

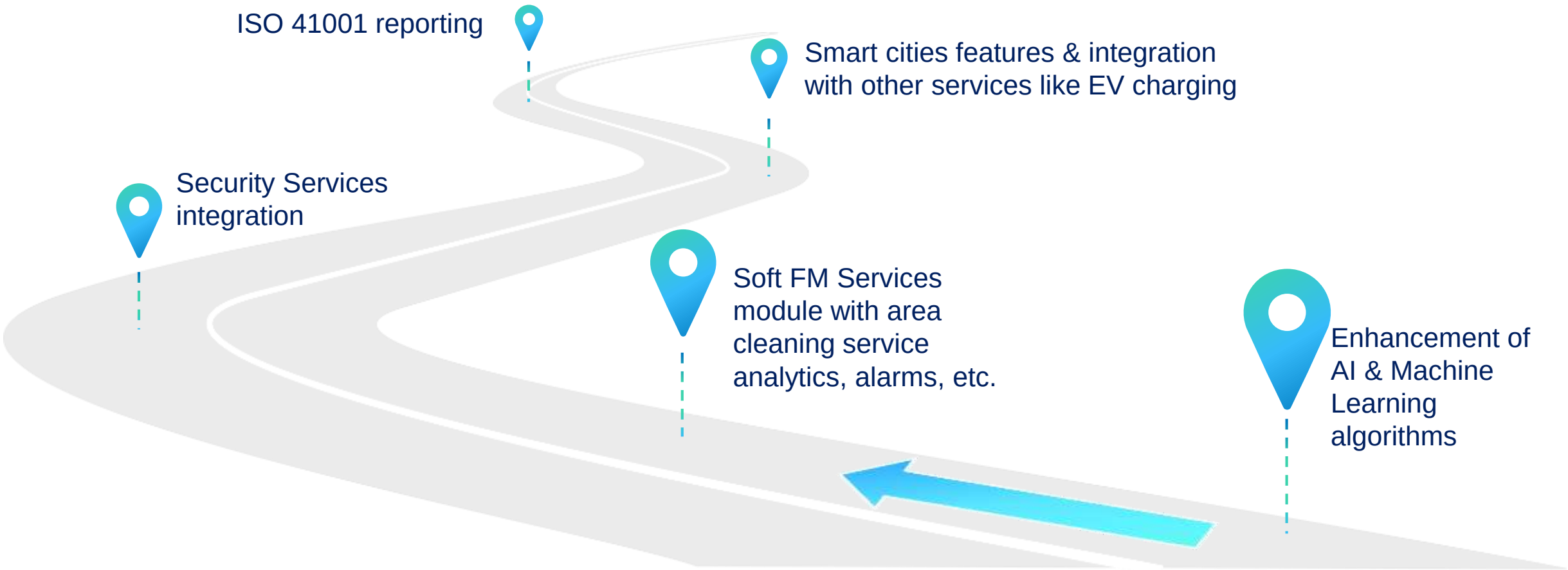
The Case Study

- Energy Management
- Pay back period: **2.5 years**
- Average achieved energy savings of **20%** in first contractual semester highly **exceed** minimum target of 12%, providing additional gain share
- CO_2 emissions **reduced by 15%**





Next Steps


ISO 41001 reporting
Smart cities features & integration with other services like EV charging
Security Services integration
Soft FM Services module with area cleaning service analytics, alarms, etc.
Enhancement of AI & Machine Learning algorithms


socializing things
ENGIE
THANK YOU!!!