

# Digitalization at Uniper

Dr.-Ing. Stephan van Aaken  
Vice President  
Asset IT Architecture and Optimization



# Digitalization at Uniper

Date: 25<sup>th</sup> April 2018

Dr.-Ing. Stephan van Asken  
VP Asset IT – Architecture and Optimization

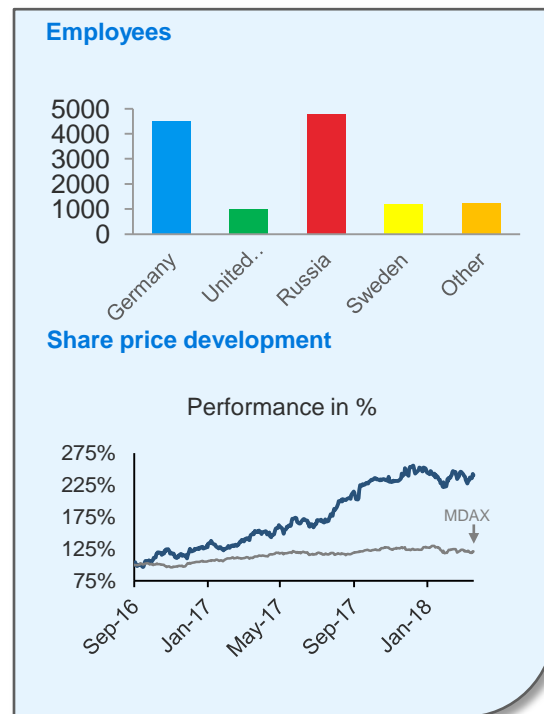


# Agenda

- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- Technical elements for a successful digital transformation at Uniper
- What was essential for the success from a Uniper perspective?
- Early benefits
- Enerlytics: Equivalent Operating Hours

# We are Uniper

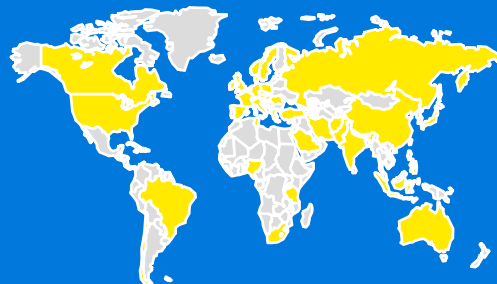
- Uniper is an **international energy company** with approximately 12,000 employees and operations in more than **40 countries**.
- Our portfolio comprises **industrial-scale plants**, **trading activities** and **service provision**.  
We provide a **reliable supply of energy**.
- Since **September 2016**, Uniper has been listed on the **stock exchange** and represented in the MDAX and MSCI-Germany.



# Uniper at a glance

## Our operations

Power Generation  
Commodity Trading  
Energy Storage  
Energy Sales  
Energy Services



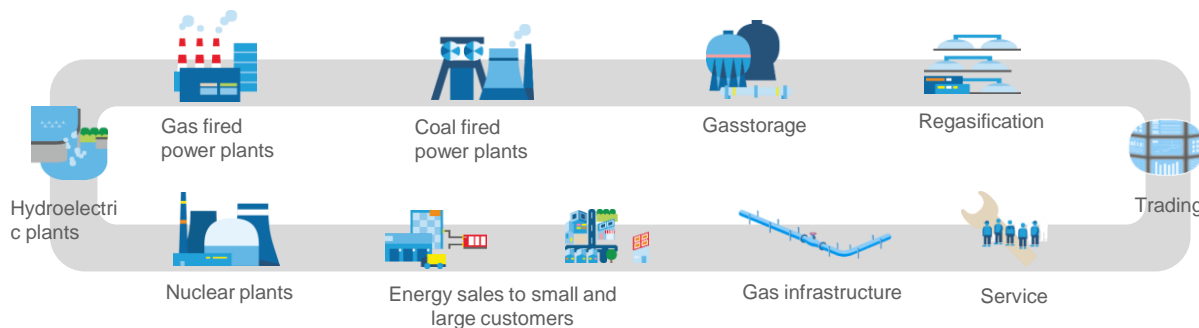
We operate in 40+ countries around the world

€1.7bn  
EBITDA in 2017

100 years  
Experience

~36 GW  
Generation capacity

## Main activities

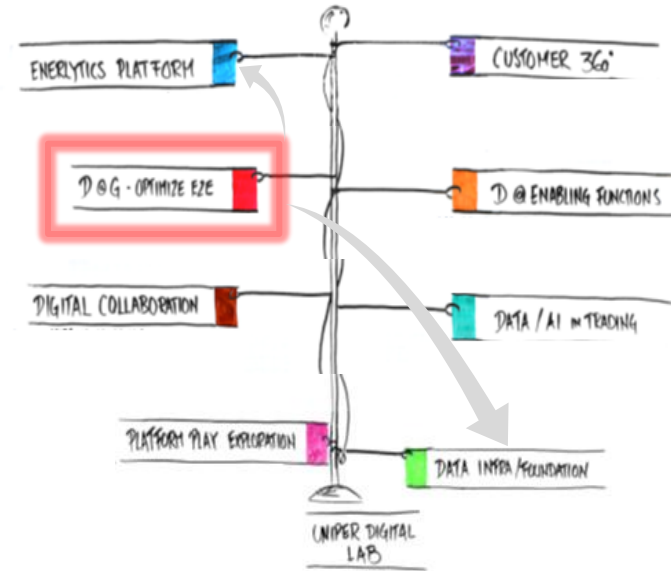
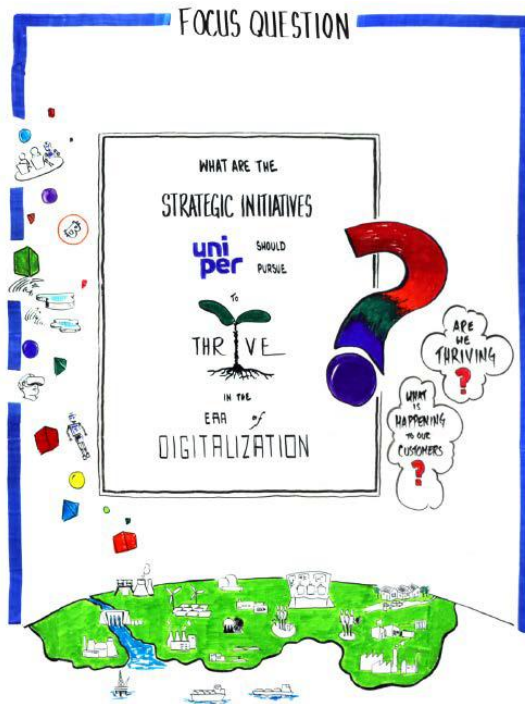




# Agenda

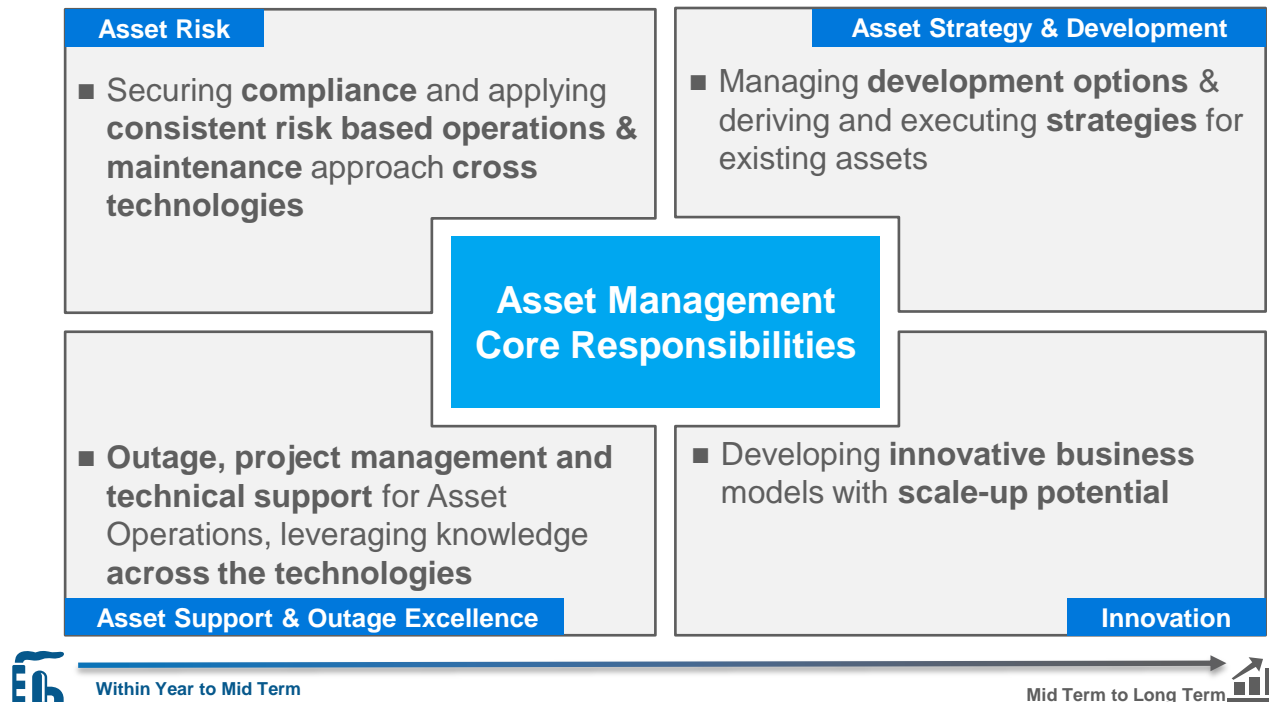
- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- Technical elements for a successful digital transformation at Uniper
- What was essential for the success from a Uniper perspective?
- Early benefits
- Enerlytics: Equivalent Operating Hours

In May 2017 we conducted an Envision Summit and agreed 9 strategic programs...



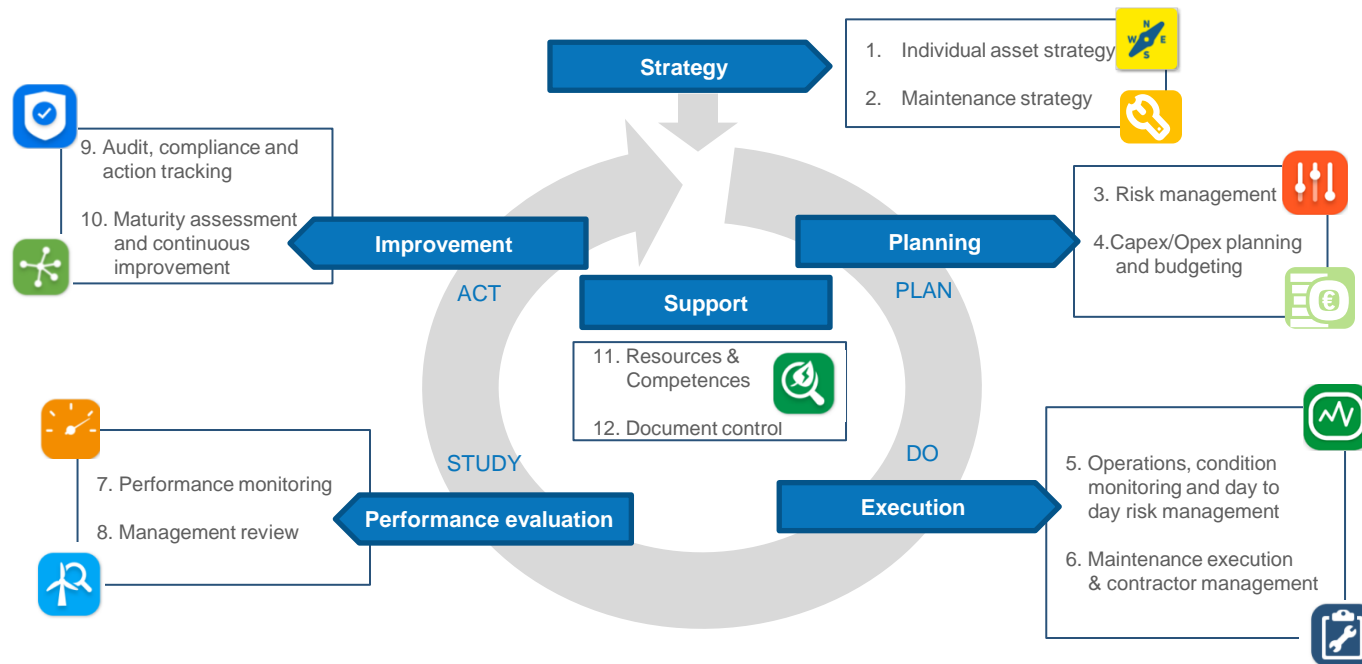


# Uniper's definition of Asset Management





# Front-to-end digitalization of Asset Management processes





# Agenda

- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- Technical elements for a successful digital transformation at Uniper
- What was essential for the success from a Uniper perspective?
- Early benefits
- Enerlytics: Equivalent Operating Hours

# Uniper's journey to it's digital transformation

...so we knew we wanted to approach this topic, but we had questions

“

We are already going through a major change, how do we approach the transformation in such challenging times?

”

“

The market is continuously changing, what do we include in the transformation and what do we leave out?

”

“

We are very cost sensitive, how much will it cost and when do we see tangible benefits?

”

“

...and how do we actually do this???

”

# Uniper's journey to it's digital transformation

3-4 Month

Digital Discovery  
(pre-project)

**Deliverables included**

- **Business case** (out-side-in) based on cross-industry experience
- **Portfolio** of initiatives with scope, cost, benefit, effort and pre-requisites
- **Roadmap** proposal



1 Month

Hand-over to  
line functions

Initiate  
D@G Program

The Uniper 'translation'  
of the roadmap



3+ year

Data Governance

System / Data Transparency

O&M Process  
Harmonization

Data Historian

Smart  
Sensors

Mobile  
Solution

KPI /  
Reporting

enerlytics  
(e.g. eoh)

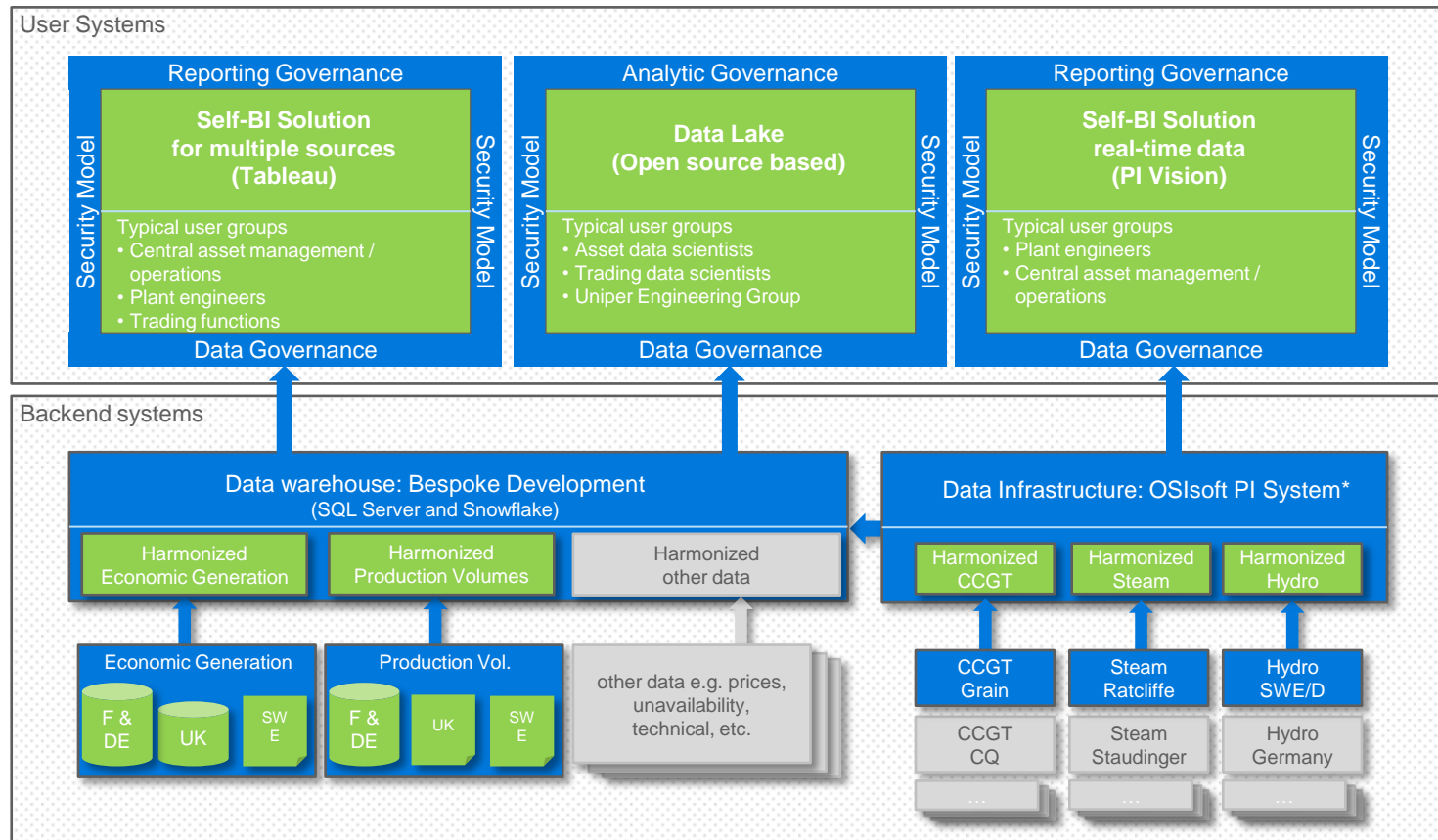




# Agenda

- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- **Technical elements for a successful digital transformation at Uniper**
- What was essential for the success from a Uniper perspective?
- Early benefits
- Enerlytics: Equivalent Operating Hours

# Abstract representation of the Uniper Architecture



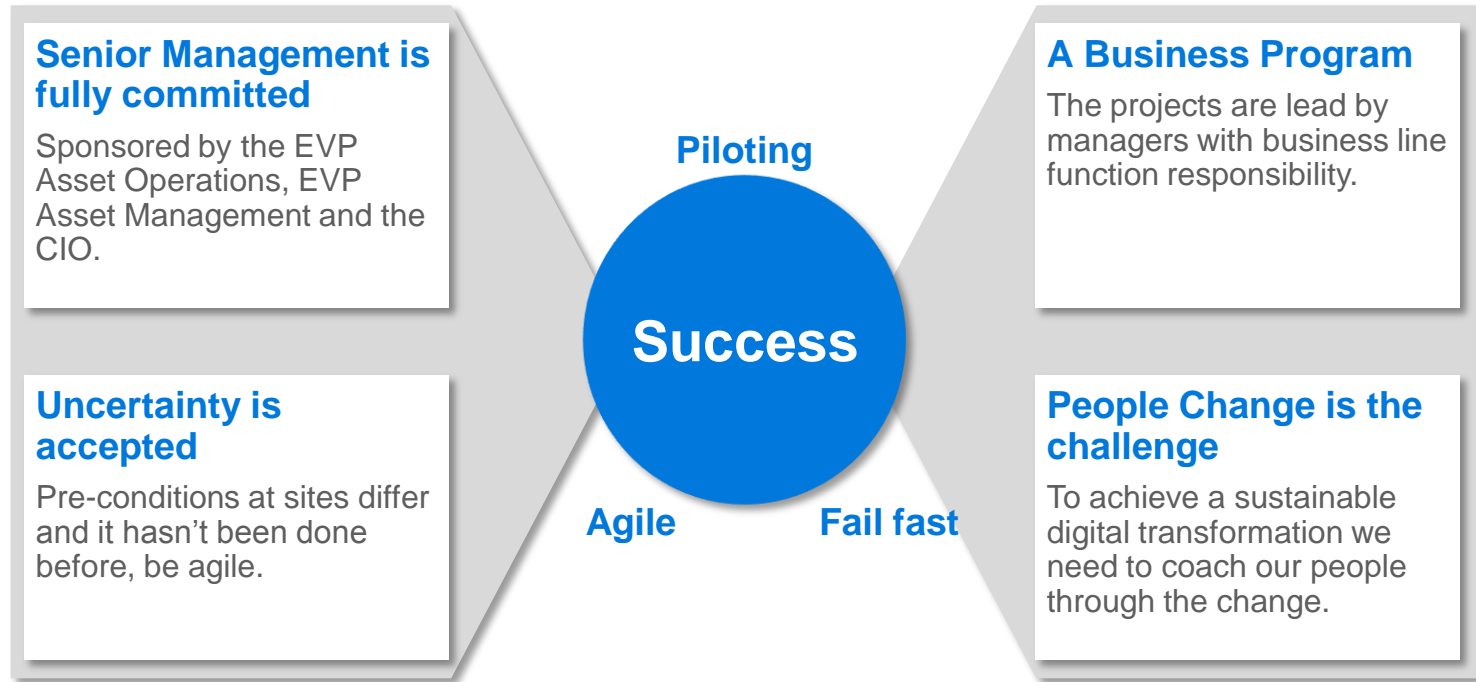


# Agenda

- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- Technical elements for a successful digital transformation at Uniper
- What was essential for the success from a Uniper perspective?
- Early benefits
- Enerlytics: Equivalent Operating Hours



# What was essential for the success from a Uniper perspective?





## Agenda

- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- Technical elements for a successful digital transformation at Uniper
- What was essential for the success from a Uniper perspective?
- **Early benefits**
- Enerlytics: Equivalent Operating Hours

# Significant benefits have been captured

Benefits have been captured within the first year of the program which is crucial for a successful people-change process

## Digitalization

### Resources freed up

A significant amount of manual data collection/ processing has been automated and therefore approx. ½ FTE have been “freed” at the first pilot site.



## Digital Transformation

### CAPEX spend reduced

With the introduction of the automated eoh based CAPEX planning, a sustainable approx. four m€ saving has been achieved.



Early benefits realized in  
the **first year** of the  
program assures buy-in

### Paper-based process digitized

The “geographically scattered” hydro business now uses mobile devices for their daily maintenance operations which is directly linked into our SAP PM.



### Fully integrated F2E process

The fully integrated f2e process will enable Uniper to align its maintenance and the commodity trading activities in an optimal way in order to benefit best from the volatile global energy market.



## Agenda

- Introduction to Uniper
- How Uniper successfully developed a digital transformation roadmap
- How Uniper approaches the implementation
- Technical elements for a successful digital transformation at Uniper
- What was essential for the success from a Uniper perspective?
- Early benefits
- **Enerlytics: Equivalent Operating Hours**

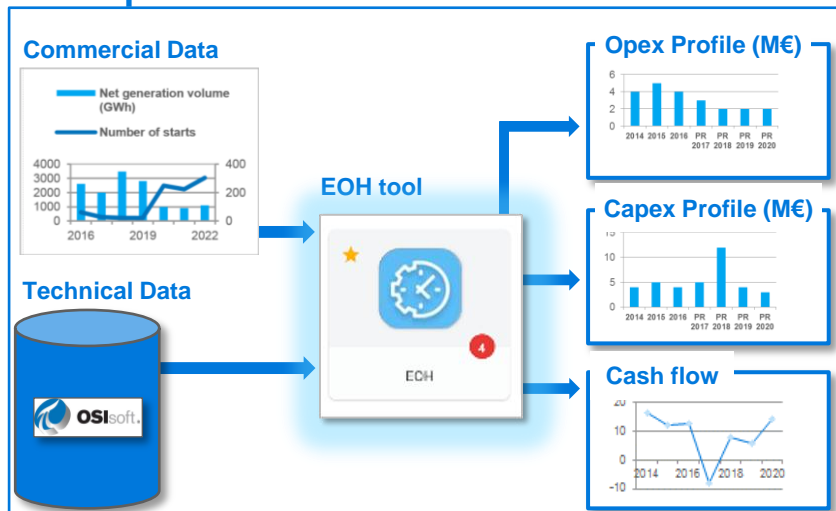
# The Equivalent Operating Hours in a nutshell

## Why adopt the Equivalent Operating Hours (eoh) concept?

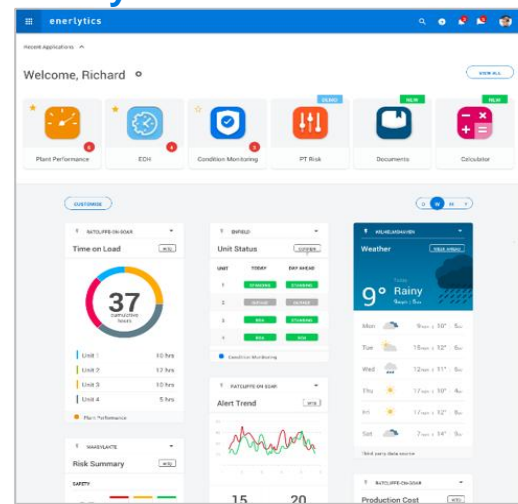
The market situation has changed dramatically in the last years. The goal is to collect all maintenance strategy for the main equipment and implement an automated tool which **deliver the latest maintenance planning** with **live site data (OSIsoft PI System)** and the **latest forecast from the trading division** (operating hours & starts).

This will allow **Flexible Maintenance** and **Unique and clear Maintenance Strategy view** per Plant .

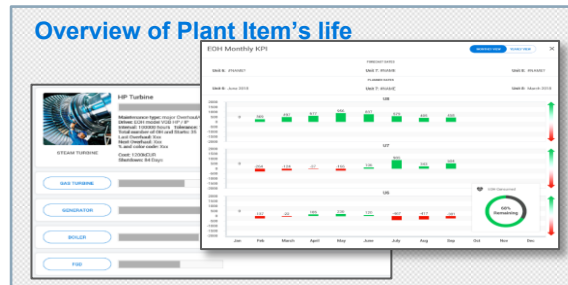
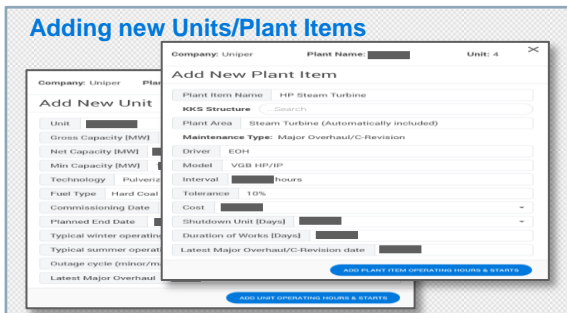
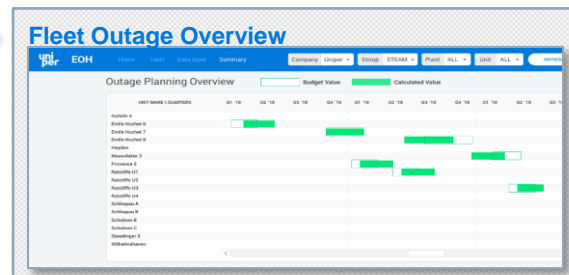
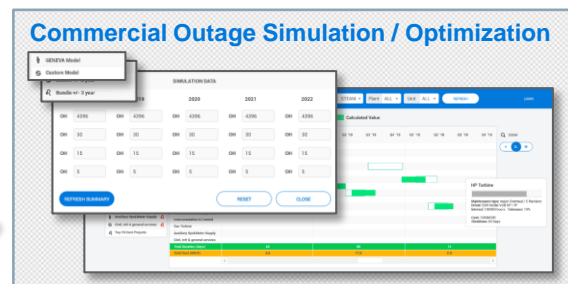
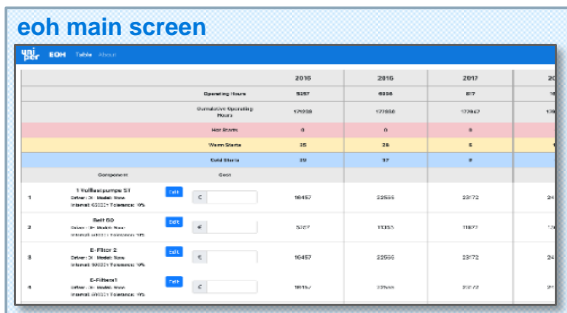
## Concept of eoh



## Enerlytics Dashboard



# Uniper's enerlytics – OSIsoft PI based Module eoh



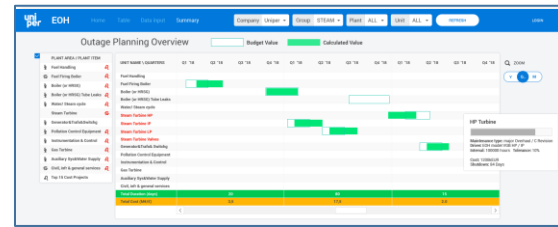
# Digitalization at Uniper



Uniper is a **global energy company** that generates, trades, and markets power on a large scale. We also procure, store, transport, and supply commodities such as natural gas, LNG, and coal as well as energy-related products.

What is special about our capabilities is that **we can provide both technical and commercial expertise** at the same time.

We are looking for innovative solutions and **believe in the advantages offered by digitalization.**



## CHALLENGE

Become truly data-driven with a front-to-end digital management of our Generation portfolio and thereby increase profitability

Each plant site is unique, therefore

- plant systems installed,
- protocols in use and
- scope, granularity, availability and quality of data

differs from site to site

## SOLUTION

Made heterogenous operational plant data available as “clean” information for planning, doing and studying

- Asset Framework
- Event Frames, Notifications
- PI Vision
- PI Data Link

## RESULTS

Significantly reduced CAPEX spend via Uniper's enerlytics based and publicly available Asset Management Planning tool and reduced waste

- Reduced CAPEX by >4mio€
- Removed waste and thereby freed-up engineer's time approx. 1000h/year per site



# Digitalization at Uniper



- **Dr.-Ing. Stephan van Aaken**
- [stephan.van.aaken@uniper.energy](mailto:stephan.van.aaken@uniper.energy)
- Vice President Asset IT  
Architecture and Optimization
- Uniper SE

# Questions

Please wait for the **microphone** before asking your questions

State your **name & company**



# Please remember to...

Complete the Online Survey for this session



**Download the Conference App for OSISOFT Users Conference 2017**

- View the latest agenda and create your own
- Meet and connect with other attendees



search **OSISOFT** in the app store

Merci

谢谢

Спасибо

Danke

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado

Learn more about **Enerlytics** visit us at

[www.uniper.energy/services](http://www.uniper.energy/services)