

Digitalization in energy and nuclear: Engagement & Leadership

2018

Kristiina Söderholm, PhD

Fortum – For a cleaner world

Megatrends

Climate change and resource efficiency
Urbanisation
Active customers
Digitalisation, new technologies

Vision

For a cleaner world



Mission

We engage our customers and society to drive the change towards a cleaner world. Our role is to accelerate this change by reshaping the energy system, improving resource efficiency and providing smart solutions. This way we deliver excellent shareholder value.

Strategy



Drive productivity and industry transformation



Grow in solar and wind



Create solutions for sustainable cities



Build new energy ventures

Fortum's five Must Win Battles

Change management programs – 3 years

Create value from market volatility

Drive competitive markets and fair regulation

Digitalise our business to maximum scalability

Establish a culture of speed and agility

Put the customer in the center

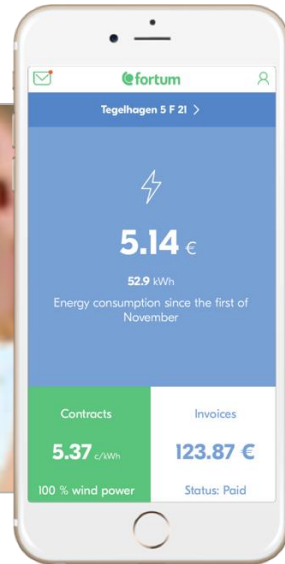


MWB Key Achievements 2017

Examples



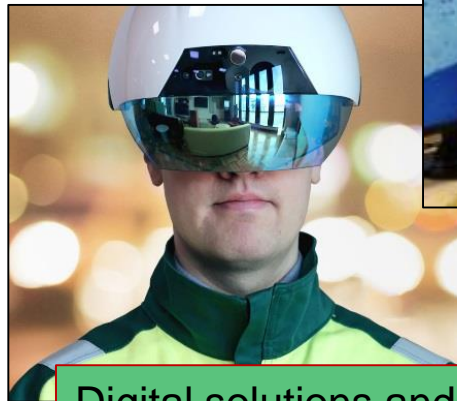
My Fortum App
for our Customers



Fortum Energy review



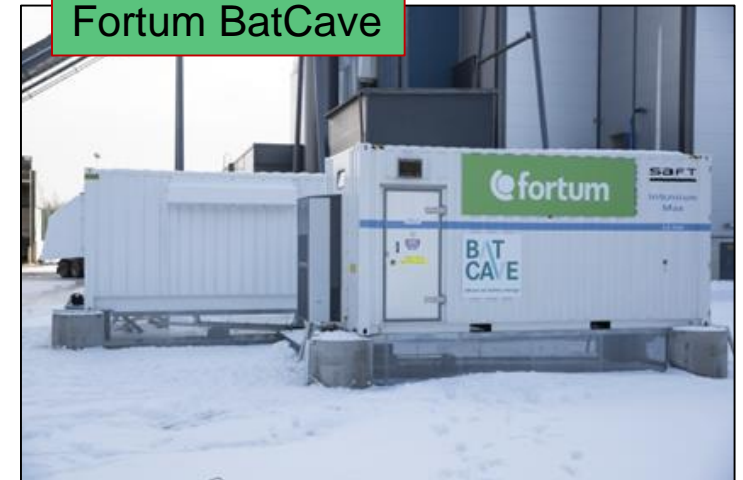
&frankly pulse for
employee engagement and feedback



Digital solutions and tools
for our operations



Fortum BatCave



Fortum Digital Transformation focus areas

1 At least one new disruptive business model

2 Energizing and emotionally engaging customer experience

Leader in energy business digitalisation

3 Advanced business operations, power plants and trading

4 Competitive and attractive working environment

Fortum Digital Transformation



At least one new disruptive business model

Energizing and emotionally engaging customer experience

Advanced business operations, power plants and trading (machines and systems)

Competitive and attractive working environment (people and culture)



Spring
Virtual Power Plant

Living business – MyFortum App



Accelerator – new innovations

Data Strategy – make data available

Predictive maintenance & asset optimization

Software robotics (RPA)

Cultural change



Examples where Virtual Reality is already in use to help operation efficiency at Loviisa NPP

- Training with interactive 360 videos
 - Radiation protection training
 - Induction for contractors before starting work
 - Emergency training
- Training with VR – simulators
 - Full scope, fully functional control room training simulator in VR environment
 - Scenarios that are not possible at physical simulators (e.g. fire in main control room)
 - Interaction from control room to field workers
- Control Room validations in VR
 - Integrated System Validation done in 2017



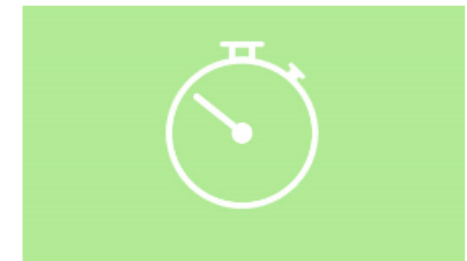
Improved Safety



Increased production



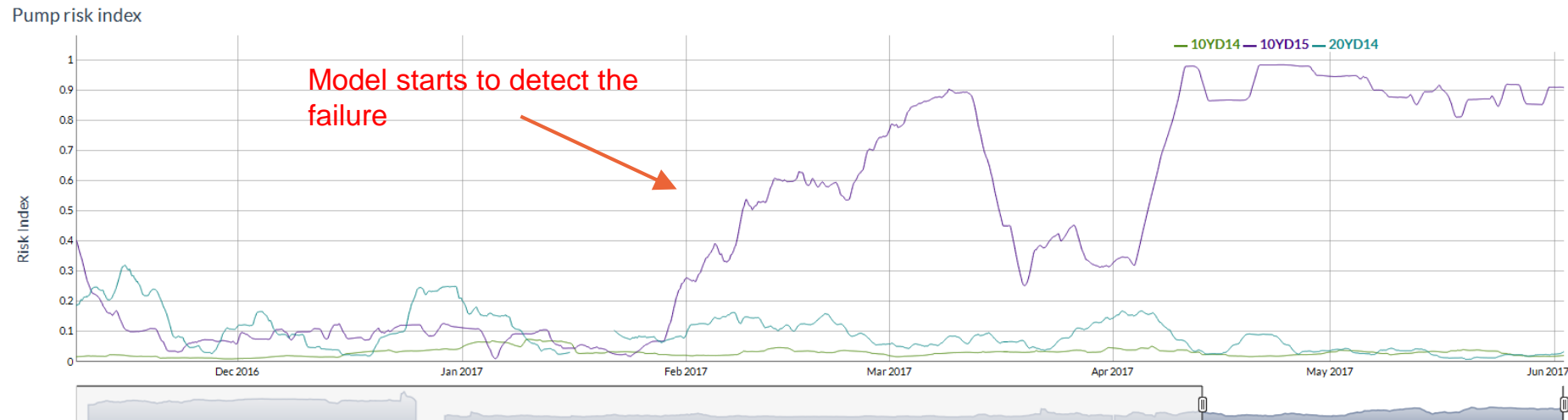
**Lower
maintenance costs**



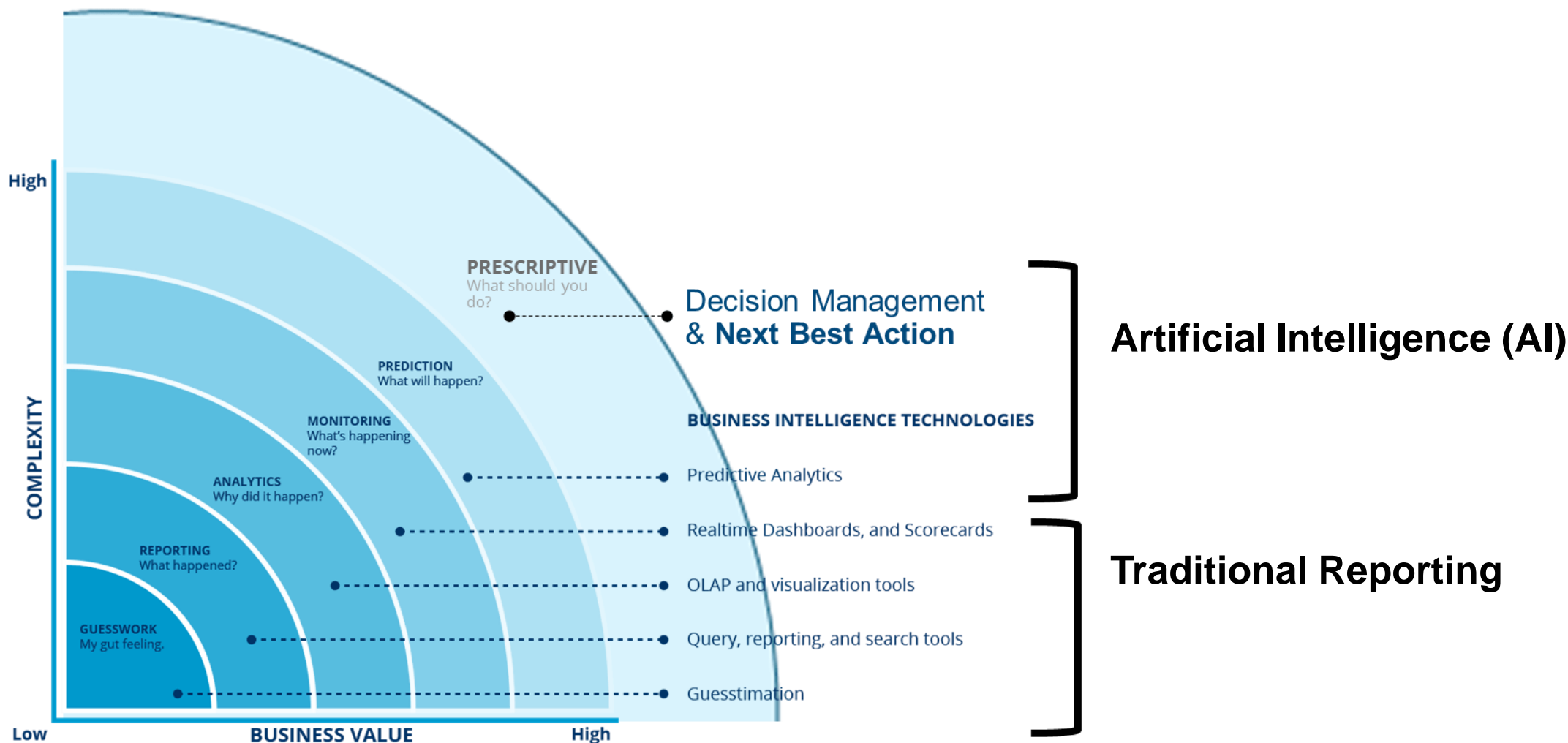
Shorter outages

Data analytics example: Early detection of main coolant pump failure

- Anticipation of main coolant pump seal wearing
 - Cannot be measured without opening the pump
- Data model was taught with earlier measurements data
- Model gave strong indication of unusual function
- The pump was opened during the outage and the wearing was confirmed
 - Avoided unavailability during operating period



World Class in data & analytics: Information combined with business concepts can create a real disruption



Building digital capabilities

- New business models in connected world
- Customer seen in a new way

Business development



Technology awareness



- Technology scouting
- Building ecosystems for digitalisation
- Accelerating selected technology areas

- Data driven understanding of our business
- Sophisticated data analysis methods
- Make data available

Data science



Agile projects



- Mixed project teams (combine users with developers)
- Fast test/pilot/poc
- Allow failures
- Commercialization

Fortum Leadership Principles – the framework

Believe
the best **IN** our people



We believe in our people, **which empowers them to believe in themselves**, grow and exceed their own expectations.

Want
the best **FOR** our people



We create a work environment and **company culture that help our people thrive**.

Expect
the best **FROM** our people



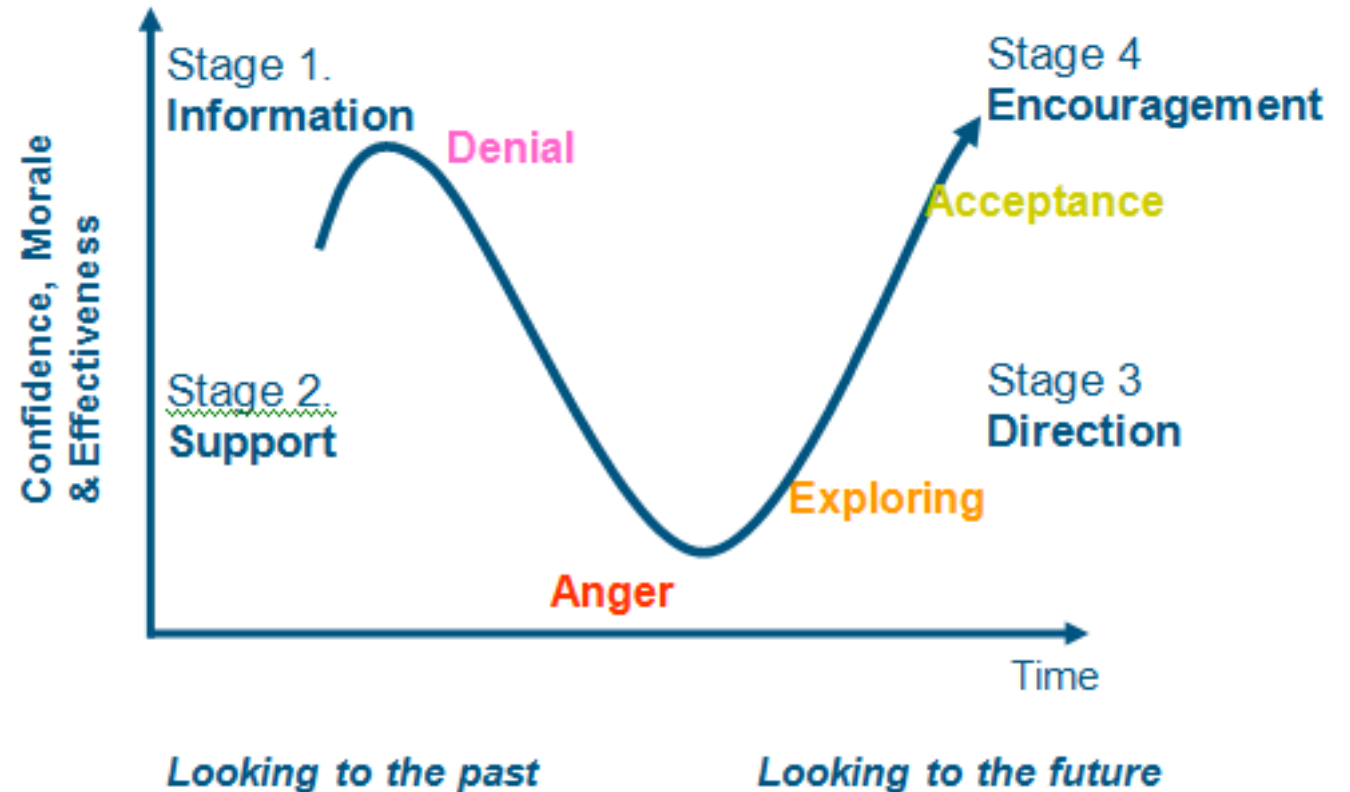
Because we believe in our people and secure a good work environment, we expect them to **deliver results and are confident they will exceed our expectations**.

Change Management

- Find quick wins
- Involve different business units (together with IT)
- Rethink your business models
- Give enough time to the change to see the results
- Focus

Disruptive business models rarely grow inside the organizations.

The Change Curve



OUR FOCUS IS IN DATA IN 2018

We are just starting our journey!

