



WORLD CLASS MAINTENANCE

Data driven Maintenance

EIT Digital Innovation Day



Lex Besselink (MsC)
Chairman of the WCM Board

Our goal: make our partners maintenance world champions

Maintenance

Asset Management

Life Cycle Management

Competitiveness

Safety

Sustainability



World Class Assets

WCM Partners



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu



Young WCM



The image shows a promotional banner for the 8th WCM Summer School on Maintenance Management & Engineering. The banner features a group photo of participants and logos of partner institutions including WCM, Rijkswaterstaat, Universiteit Twente, TU Delft, TU/e, Erasmus Universiteit Rotterdam, and Rijksuniversiteit Groningen. Below the banner is a social media post from March 11, 2019, by Jan Braaksma, announcing the school is open for application. The post includes a 'Like' button, a 'Share' button, and a 'Tweet' button. The text of the post reads: 'Are you a technical Master/PhD student or young professional (within 10 years after graduation), with a special interest in Maintenance Management & Engineering, then apply to the seventh edition (before June 1st) of our WCM Summer School 2019 (July 29th - August 2nd, 2019) and challenge yourself in our exciting program.'

WCM SUMMER SCHOOL 2019

8TH WCM SUMMER SCHOOL
ON MAINTENANCE MANAGEMENT & ENGINEERING

APPLY NOW! (BEFORE JUNE 1ST)
JULY 29TH - AUGUST 2ND 2019

CHALLENGE YOURSELF!

WCM Summer School Application Program and schedule Lecturers History Contact Partners

WCM Summer School 2019 – open for application! – case RWS

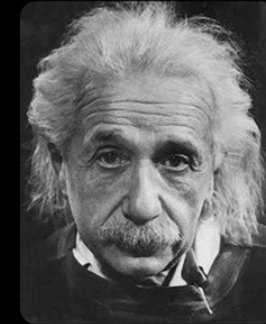
Posted on March 11, 2019 by Jan Braaksma

Like Share Tweet

Are you a technical Master/PhD student or young professional (within 10 years after graduation), with a special interest in Maintenance Management & Engineering, then apply to the seventh edition (before June 1st) of our WCM Summer School 2019 (July 29th - August 2nd, 2019) and challenge yourself in our exciting program.

WORLD CLASS MAINTENANCE

“No problem can be solved from the same level of consciousness that created it.”



- Albert Einstein

We believe in



Open Innovation

Cross-sectoral cooperation

Cooperation of companies, knowledge & education institutes and government



Fieldlabs & projects



Knowledge and info

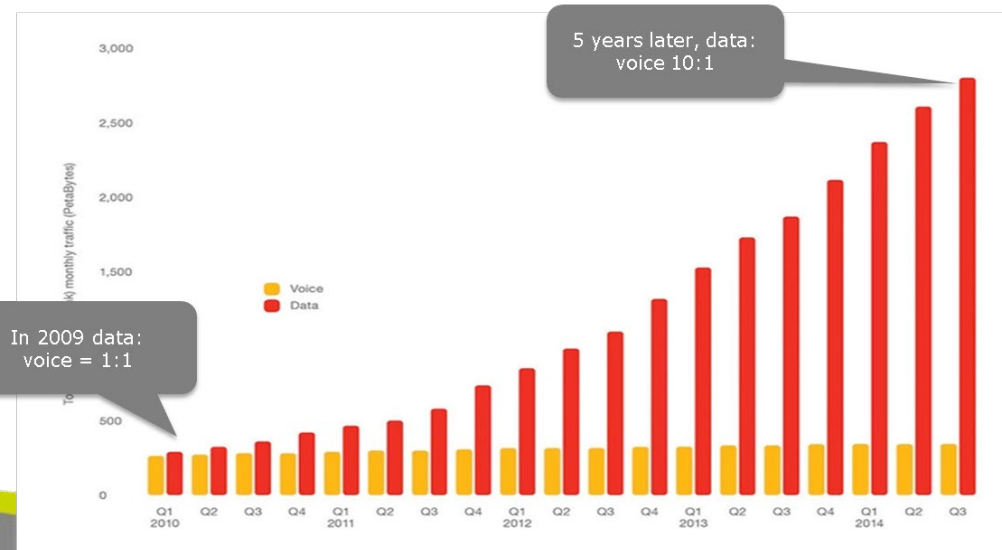
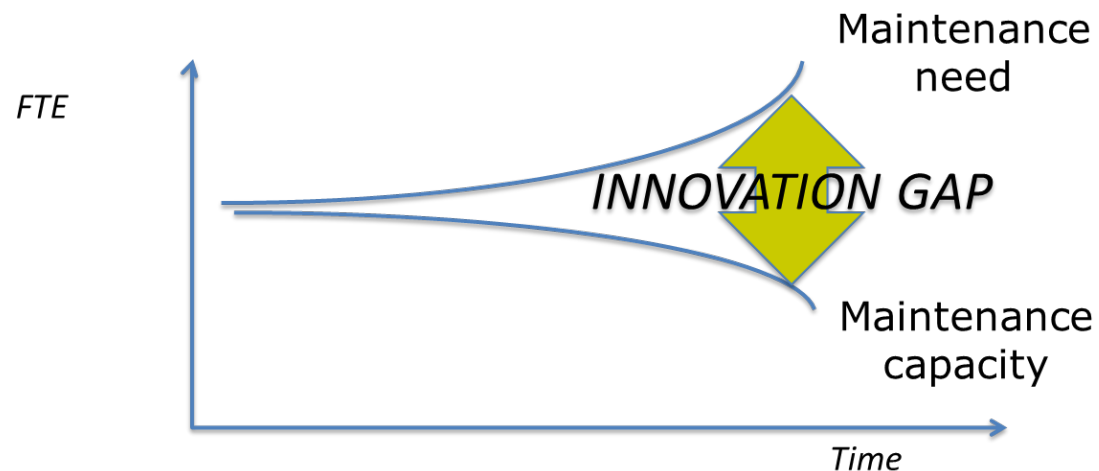


Lobby & politics

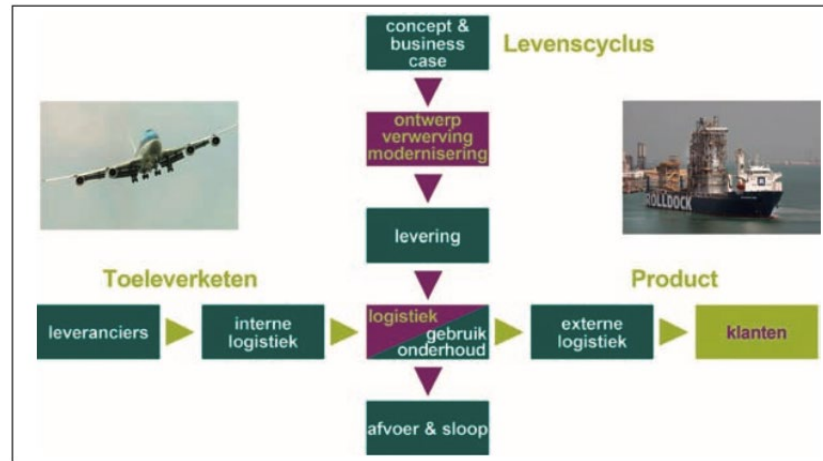


Network

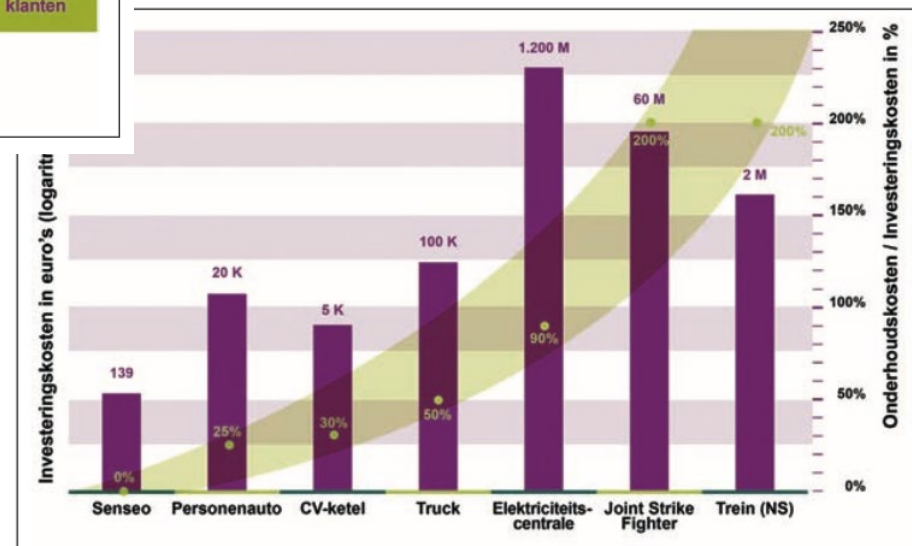
Aging assets meet digital manufacturing



Smart Moves: Asset management is of strategic importance, but underestimated



Source: van Dongen, L. (2011):
Maintenance engineering. Inaugural
lecture, Twente University



The rise of digital manufacturing in “smart maintenance”



An industrial revolution is happening as multiple new technologies converge

- Brilliant factories
- Extreme Machines
- Energy Everywhere
- Mapped minds
- Super materials
- Industrial internet



[Six technologies that will shape our future](#)

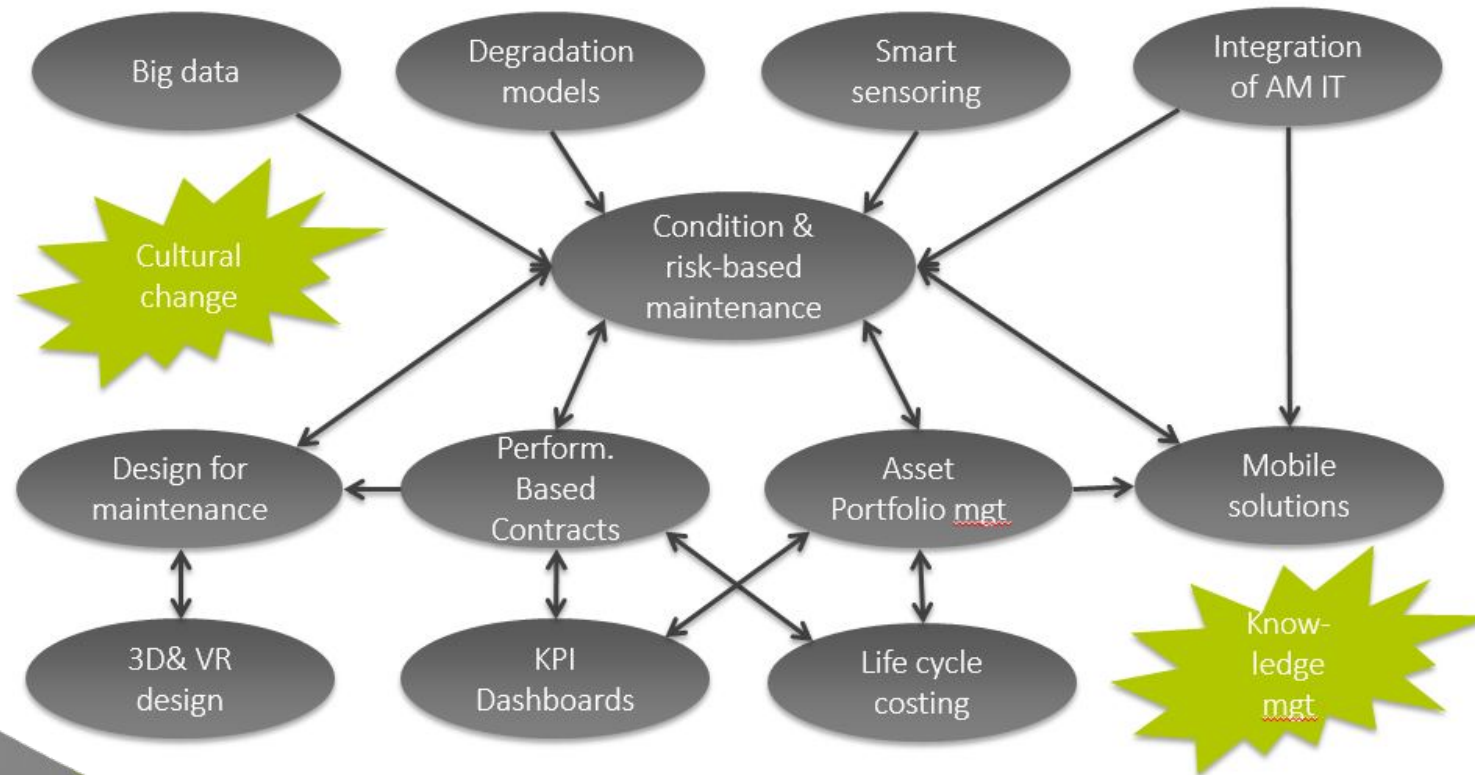


Non-technical process innovations, culture changes and data-driven in the Top-14

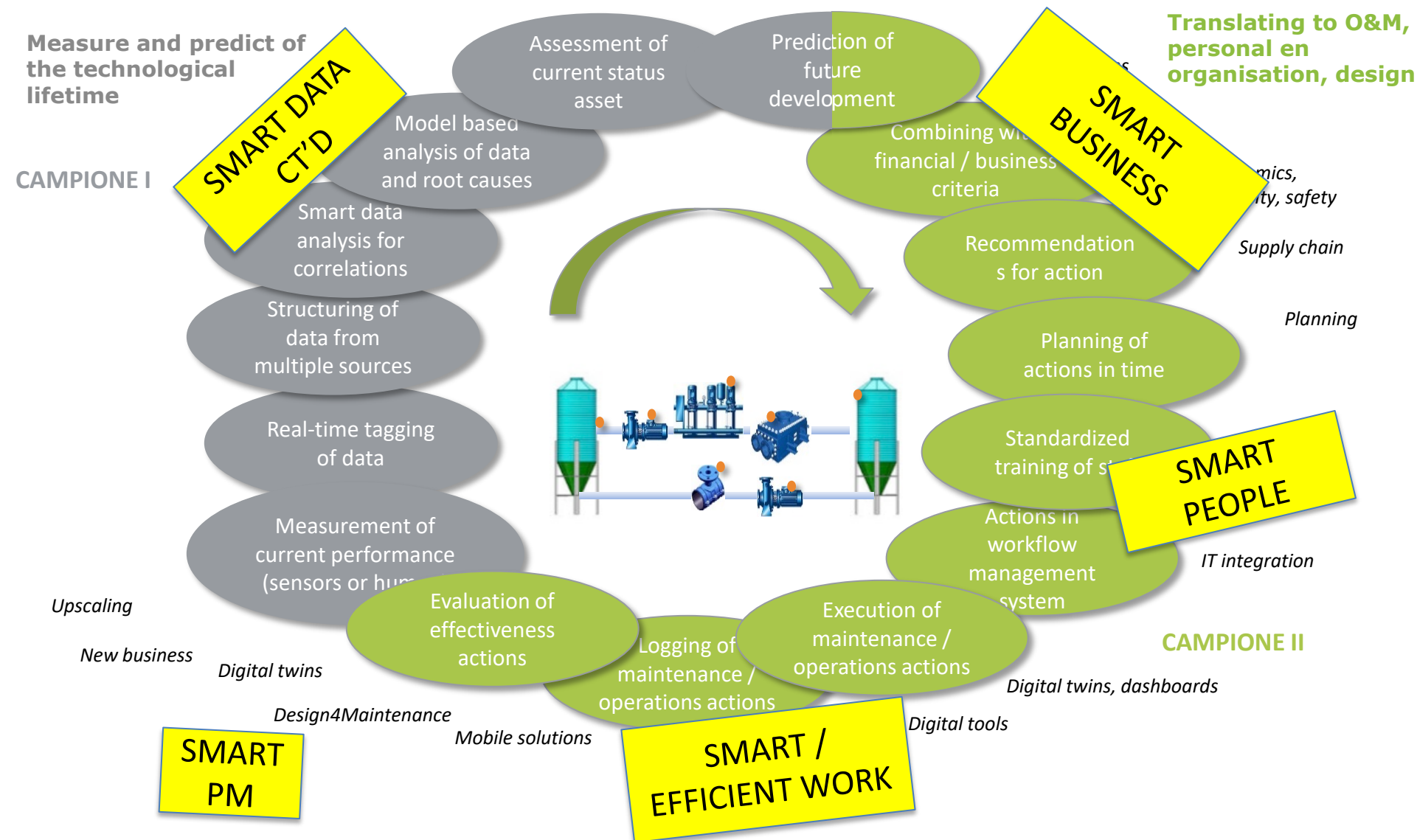
Rank	No.	Name	Importance	Impact
1	I24	Big-data analytics	21	5.6
2	I30	Smart sensors	21	5.0
3	I01	Cultural and behavioural change	20	6.1
4	I21	Condition and risk-based maintenance strategies	20	4.7
5	I25	Design for maintenance	20	5.7
6	I03	Knowledge management	16	5.5
7	I08	Interfacing AM IT systems	16	4.8
8	I19	Degradation Models	16	5.0
9	I18	Life cycle costing	15	4.8
10	I10/29	Performance dashboards	14	4.4
11	I14	Asset portfolio management	14	5.0
12	I07/06	Performance contracting	13	4.0
13	I27	Mobile solutions	12	4.8
14	I05	3D design and virtual reality	10	4.4



Deep interdependencies between the top-14 maintenance innovations



The focus areas are covering the whole CBM cycle



The data-enrichment cycle in Condition-Based Maintenance

Towards zero downtime



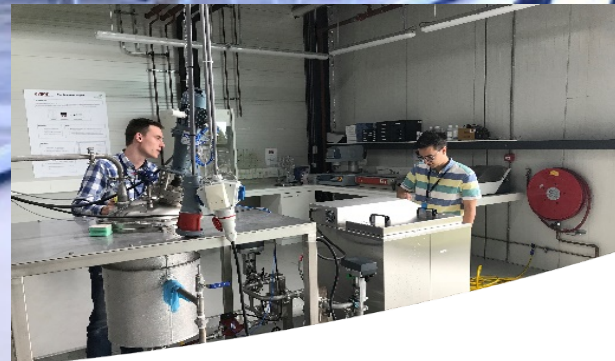
WORLD CLASS
MAINTENANCE
oost

WORLD CLASS
MAINTENANCE
zuid

WORLD CLASS
MAINTENANCE

Fieldlab CAMPIONE

- First Smart Industry Fieldlab in The Netherlands
- 100% predictive maintenance for the process industry
- 36 partners
- 12 MEURO
- 4 years



Fieldlab Camino Testfacility Lock at Eefde



Rijkswaterstaat
Ministry of Infrastructure and the
Environment



enerGQ™

KE-works

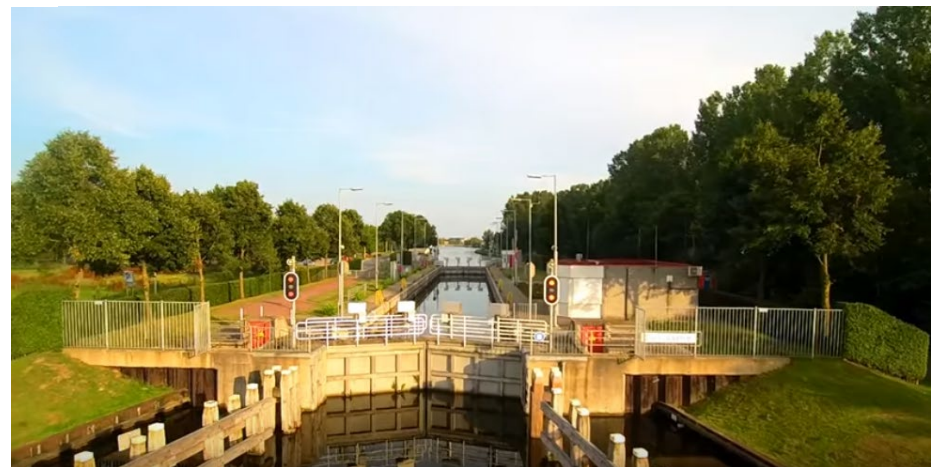


UNIVERSITEIT
TWENTE.

In total
42 objects
in scope



Focus 1: Zwartewaterbrug - Hasselt



Focus 2: Bridge/lock Aadorp

**UNIVERSITY
OF TWENTE.**



Test oven for waste
disposal at TNO/ECN
in Petten



Fieldlab The Learning
Stone

FORTISSIMO: Food and agrO Industry RemoTe monitoring based Smart
Services for Maintenance and Operations

17-06-2019



Network for Smart Maintenance

Smart Maintenance Enabled Business (SAMEN)

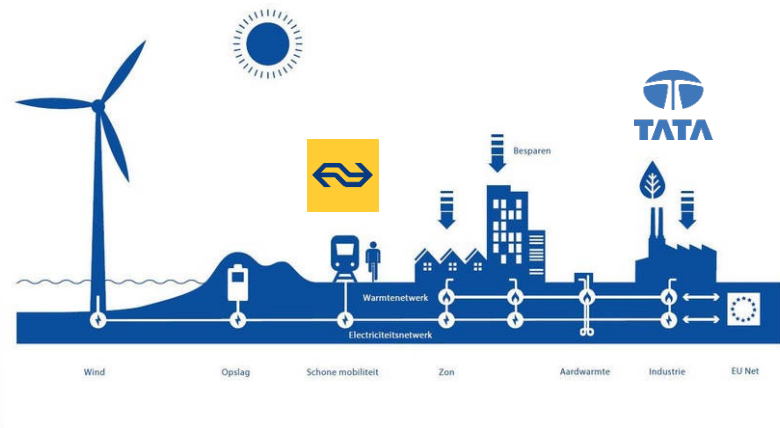


Project Outline v0.3 – 24-04-2019




Smart Maintenance
Skillslab

Case Challenge – Energy Transition



ONDERHOUD  WCM JAAREVENT
POSITIEVE IMPACT OP DE ENERGIETRANSITIE 08/10/2019

Wrap-up

- Maintenance isn't anymore a cost factor but evenmore added value
- There are now good sensors
- Internet of things and big data
- Predictive maintenance isn't a wish; it is used now
- Fieldlabs are easily accesible
- Proffesional schools are teaching the employee of the future data analytics



A hand holding a white smartphone in the foreground, with industrial machinery in the background. The machinery features blue vertical supports, metal rails, and various mechanical components. A semi-transparent grey box is in the top right, and a semi-transparent teal box is in the middle right. A yellow logo is in the bottom left corner.

Thanks for your time

www.worldclassmaintenance.com

