

# Sitech Services: Smarter Maintenance

Motor Workshop 2017 - European Copper Institute

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# Content

- Introduction
- Sitech Services
- Maintenance on electrical motors
- Sitech Asset Health Center (SAHC)
- Pilot Smarter Conditioning Monitoring on electrical motors
- Joint Actions

# What is Sitech

- A professional site and manufacturing organisation
- Based in Geleen, the Netherlands, 900 employees
- With broad experience
- And a proven track record.

## Our Services

- Manufacturing Services
  - Maintenance, Improve, Turn Around, Technology
- Park Services
  - Fire Brigade
  - Park Protection
  - Waste Water treatment plant
- SHE Services (site permit)

## Main customers



# What types of maintenance we do on electric motors?

- Breakdown
- Compliance



- Preventive



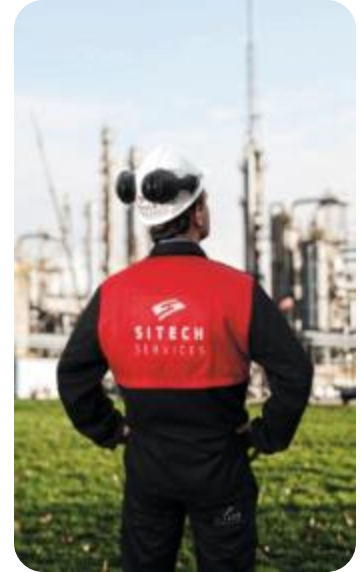
- Predictive



# What if...

... We are able to

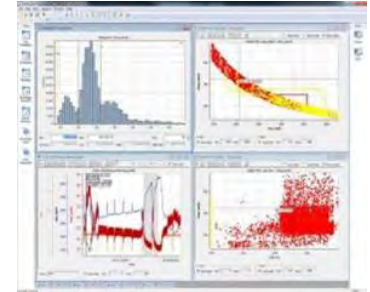
- predict equipment failures
- monitor the asset health in real time
- forecast asset life time



**ZERO SURPRISES, dream or reality?**

**That is our vision and we would like to share our journey with you**

# Innovation...

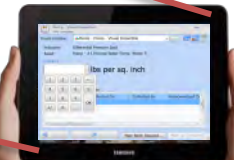


... we are connecting already existing but sometimes “modern” solutions .....

# ...to build the Sitech Asset Health Center



Asset ID	Status	Last Update
AS-001	Operational	2023-08-26 10:00
AS-002	Warning	2023-08-26 09:55
AS-003	Offline	2023-08-26 09:45

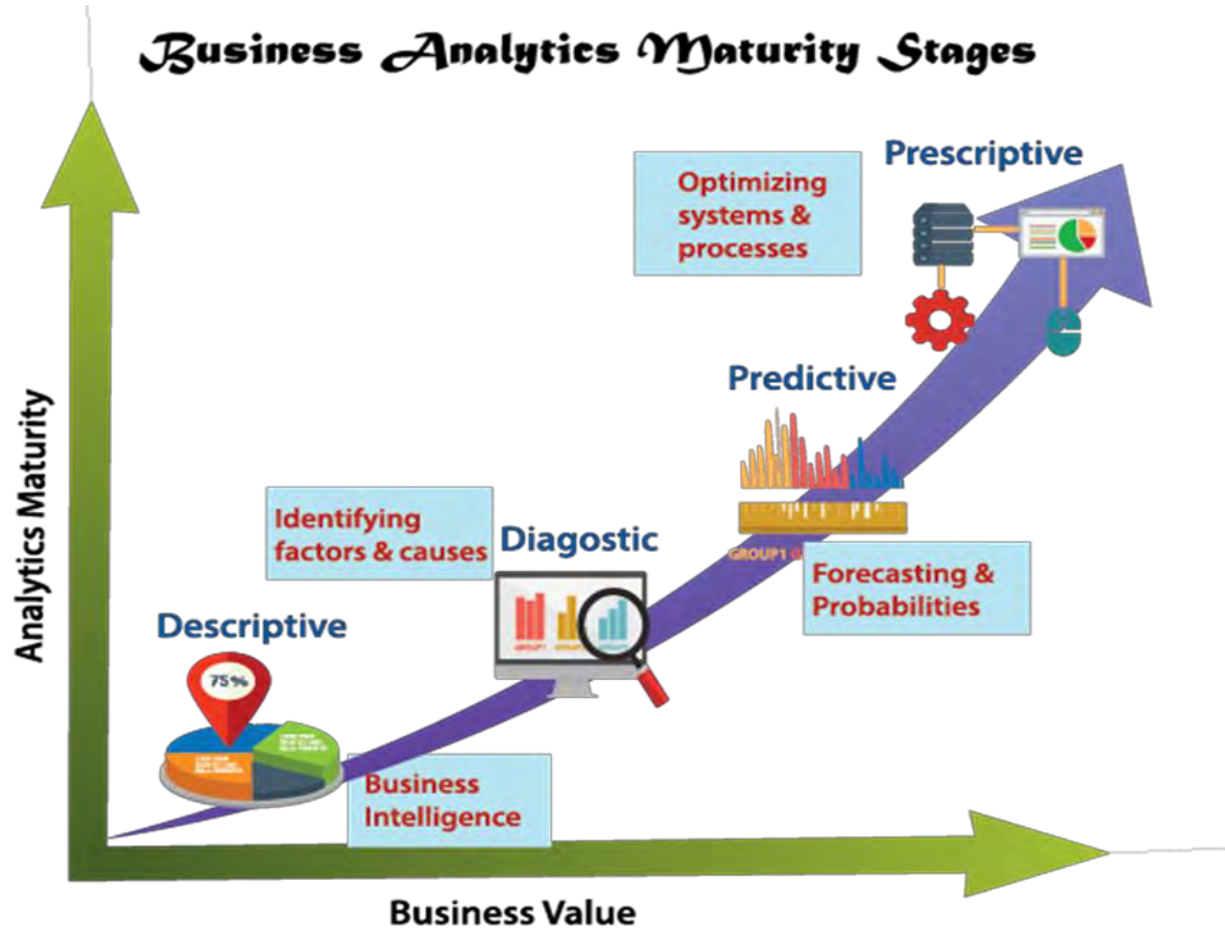


...and open it on 14<sup>th</sup> of April 2016 with asset owners





# We are creating a digital culture



# How?

## First: think big, act small

- Sitech vision: more predictive
- Small pilots to keep focus and risks low
- Every pilot based on business case in a plant
- Support partners & funding via Smart Industry initiative

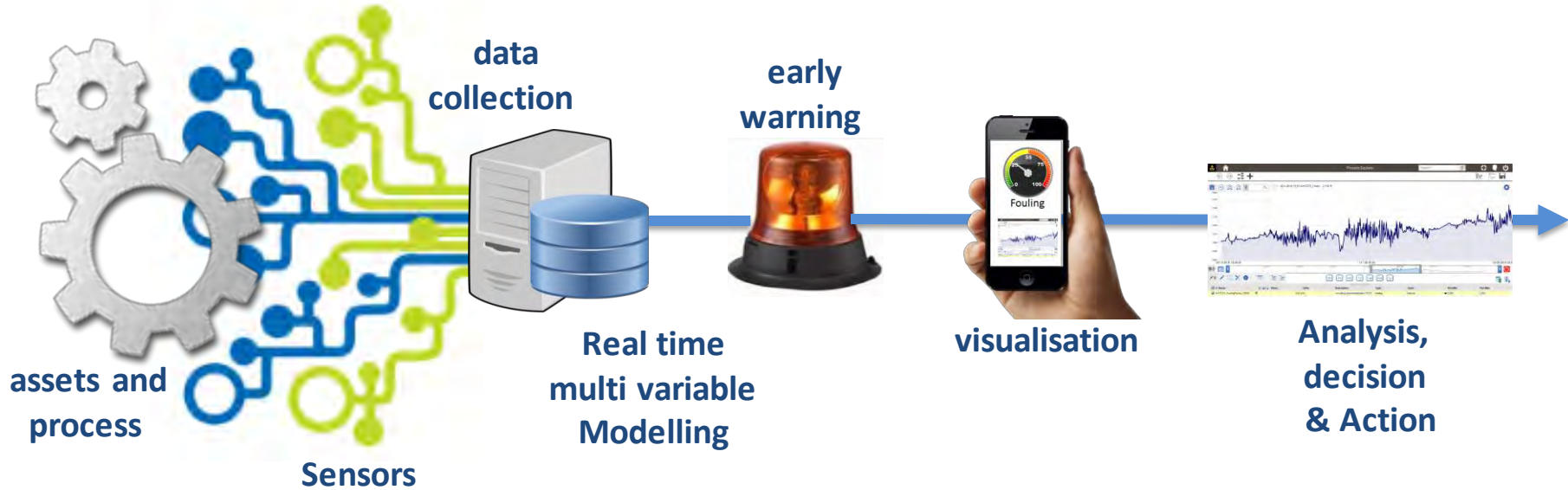


## Next: speed up and scale up

- Scrum approach to speed up
- Every plant a different pilot
- **Impact by scaling up on site**



# Data gives us an early warning and today's technology trends helps...



<p><b>IoT</b> Impact smart sensors and connectivity</p>	<p><b>Big data</b> Combination real time data from machines, process, environment. Cloud computing</p>	<p><b>Analytics</b> Increased computing power for complex algorithms: Machine Learning Deep learning</p>	<p><b>Human-Machine interfaces</b> Dashboards with health and condition information Mobile devices and apps to present and share</p>
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# Pilot: Smart Condition Monitoring motors

## Early warning:

Alarm via multi variable model: degradation pattern visible in graph.

## Action:

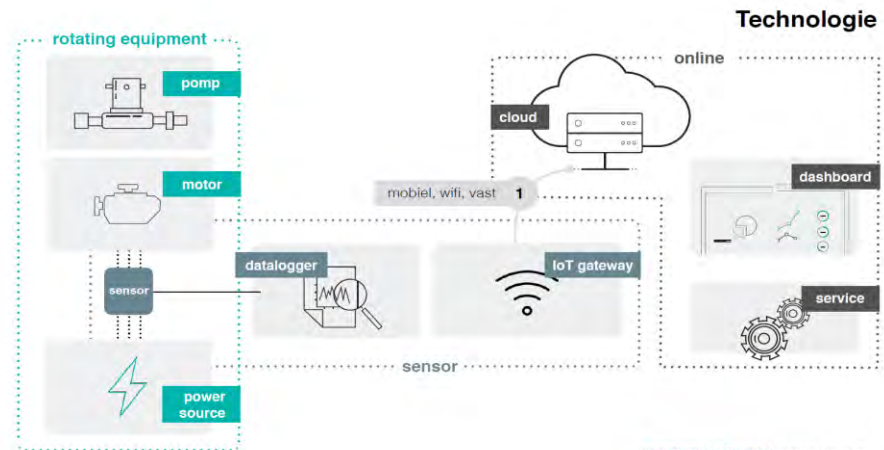
Semiotic Labs will monitor the health of AC induction electric motors by using a proprietary sensor that measures current at 20.000 cycles per second. Data is sent to the Semiotec platform, where they analyze the patterns using machine learning algorithms. When they detect an upcoming failure The asset health center receives an alert, to replace or repair assets during scheduled maintenance windows.

## Added Value:

Early warnings for equipment failures  
An online dashboard

No production losses.

No extra costs urgency work



## Central Sample Demo Motor

# 25.00

CURRENT SCORE

SUPPORT

REPORT

ID

000156

HIGHEST LAST 90 DAYS

48.32

AMPÈRE

125

APPLICATION

Sample Content

LOCATION

Central Stage

TECHNICAL OWNER

Michael Williams



**SITECH**  
SERVICES



JANUARY 5, 2017

FREQUENCY SPECTRUM 9AM, 22.98

7AM	23.25
8AM	23.22
<b>9AM</b>	<b>22.98</b>
10AM	22.16
11AM	21.66
12PM	22.95
1PM	23.05
2PM	23.14
3PM	23.28

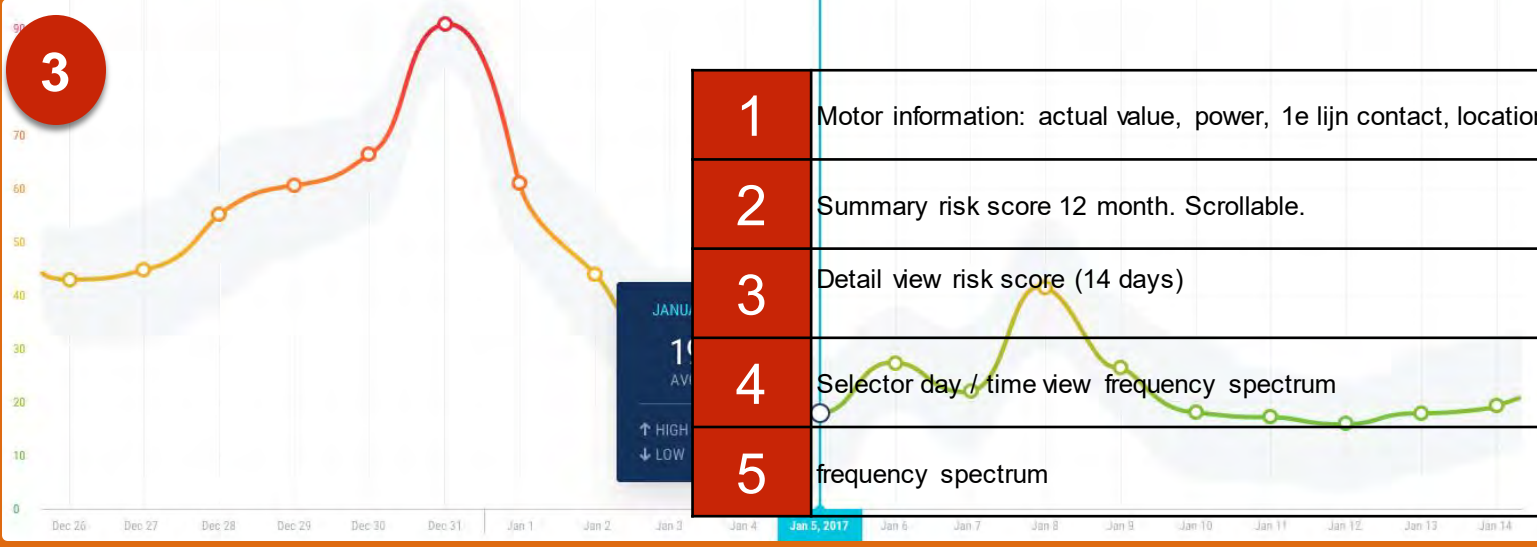


# 1 Central Sample no Motor

25.00  
CURRENT SCORE

SUPPORT REPORT

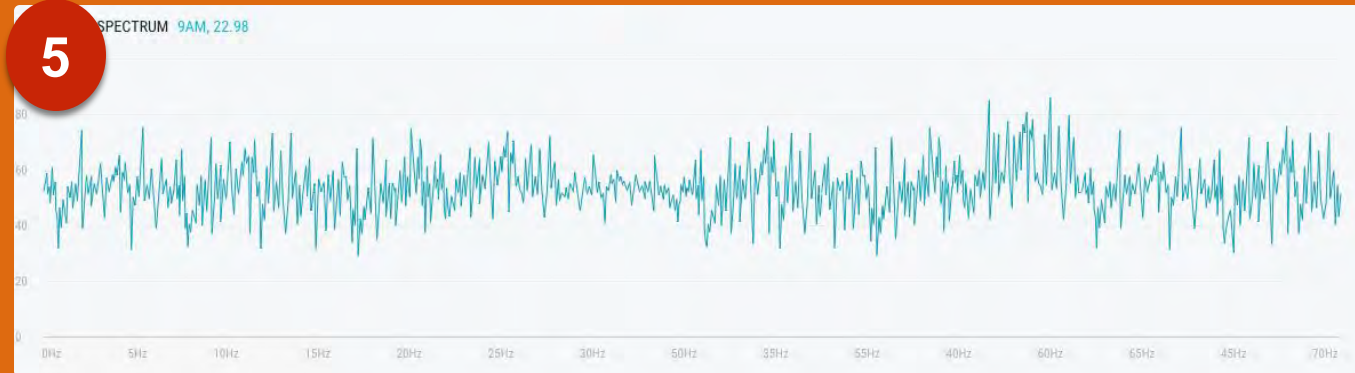
ID: 000156  
HIGHEST LAST 90 DAYS: 48.32  
AMPERE: 125  
APPLICATION: Sample Content  
LOCATION: Central Stage  
TECHNICAL OWNER: Michael Williams



- 1 Motor information: actual value, power, 1e lijn contact, location
- 2 Summary risk score 12 month. Scrollable.
- 3 Detail view risk score (14 days)
- 4 Selector day / time view frequency spectrum
- 5 frequency spectrum

4

Time	Score
8AM	23.22
9AM	22.98
10AM	22.16
11AM	21.66
12PM	22.95
1PM	23.05
2PM	23.14
3PM	23.28



# Joint actions

- Who wants to invite us to tell our complete story?
- Who can we help to let their dream on prescriptive maintenance come true?

Thank you for your attention.



**S I T E C H**  
**S E R V I C E S**

**We improve, every day**

[www.sitech.nl](http://www.sitech.nl)





## Further information:

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