Predictive Maintenance as part of a Circular Economy approach

00:20

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Part of the Green Deal to make Europe carbon-neutral by 2050.

Read more: https://buff.ly/3p6mL6h

#GHS2020

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Estamos assumindo um novo compromisso: neutralizar as nossas emissões de CO_2 até 2050. Braskem. Um futuro mais sustentável, hoje.

Um futuro mais sustentável, hoje. Learn more

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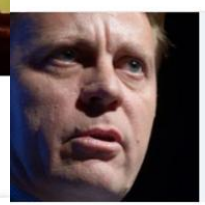
Newmont Goldcorp Corporation was mentioned in the news



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Herbert Cordeiro • 2nd
Supervisor de Gestão do Conhecimento Mina | Carajás | Serra Norte | Vale
11h •

A Vale deu um passo importante na implementação do Programa Carbono na Cadeia de Valor: firmou uma parceria com o Carbon Disclosure Project (CDP) para incentivar seus fornecedores a medir e reportar suas emissões de gases de efeito estufa (GEE). O Programa faz parte da estratégia da empresa de se tornar uma mineradora carbono neutra em 2050. Vale ler e compartilhar!

See translation

Vale e CDP: parceria visando redução de emissões de CO2 entre fornecedores
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carbon neutral Filters 1

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Frederic R. Simoes • 3rd+
Division CFO - Novartis Business Service at Novartis
18h •

I am proud of Novartis for aggressively pursuing our sustainability commitments to be Carbon neutral in our own operations by 2025 and across our supply chain by 2030.

This pan-European virtual power purchase agreement is a first and was complex to setup ... but the prize is worth it: it is the equivalent of removing ~113,000 vehicles from our roads annually ❌🚗🚙🚚❓

I am even prouder of the people who made it happen Mark Scoffin James Goudreau Jim O'Meara and our passionate REFS Finance team Reto Callegher Pascal Joder thank you 🙏🙏🙏

#proudtobenovartis
#returnmoretosociety
#sustainability
#environment

Irina Stefanova
montse montaner

Novartis Set to Achieve 100% Renewable

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SKF
Carbon neutral manufacturing 2030

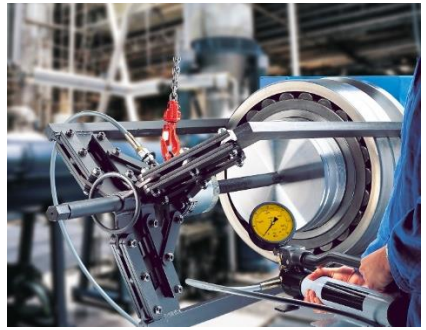
The target covers SKF's emissions in the manufacturing phase of the product life cycle

Raw material

Manufacturing (Carbon Neutral 2030)

Goods transportation

Use by customers



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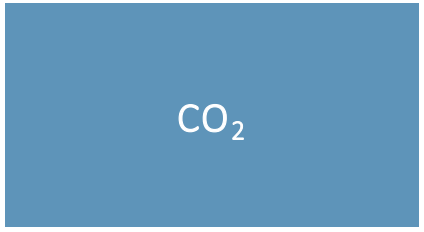
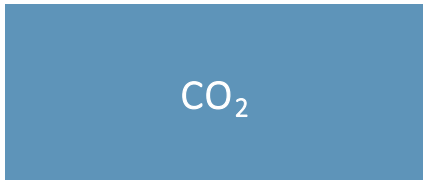
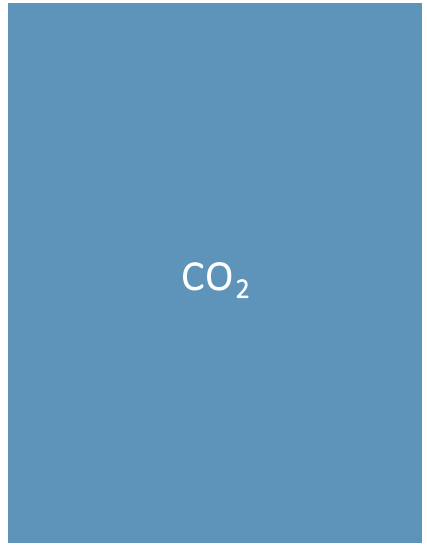
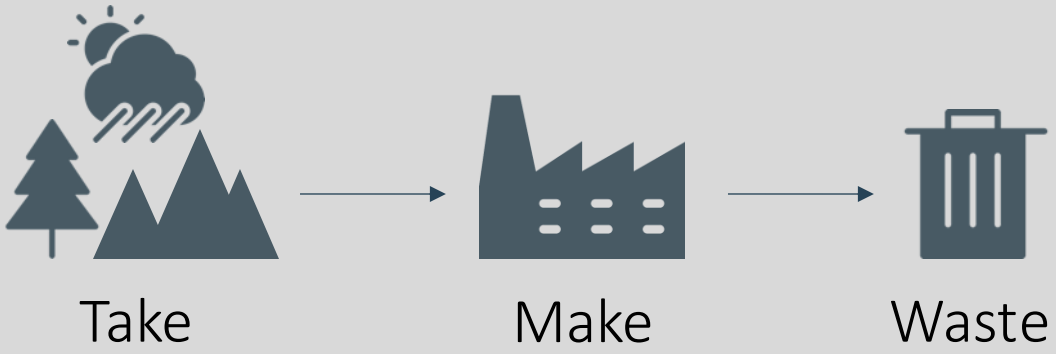
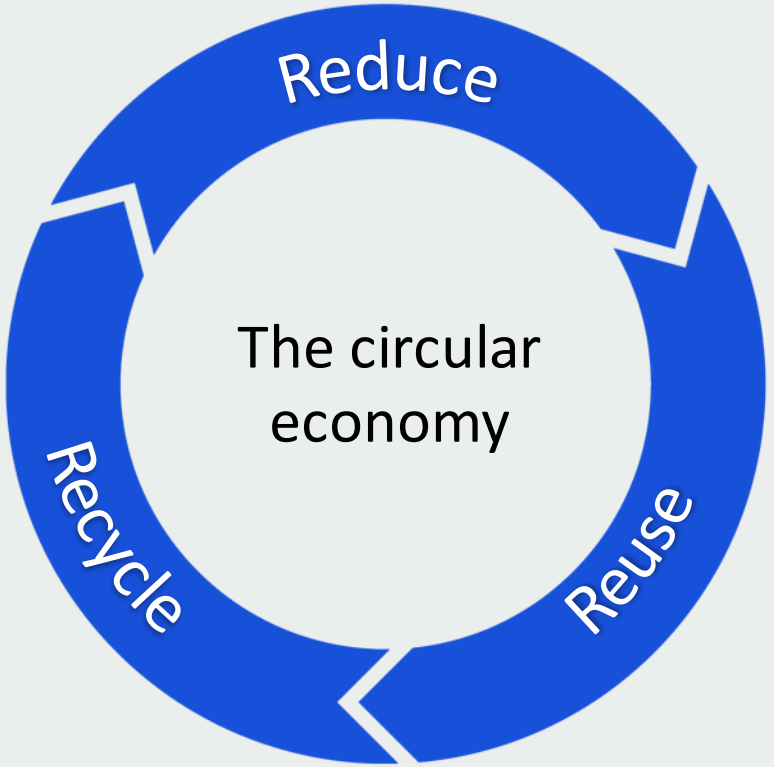






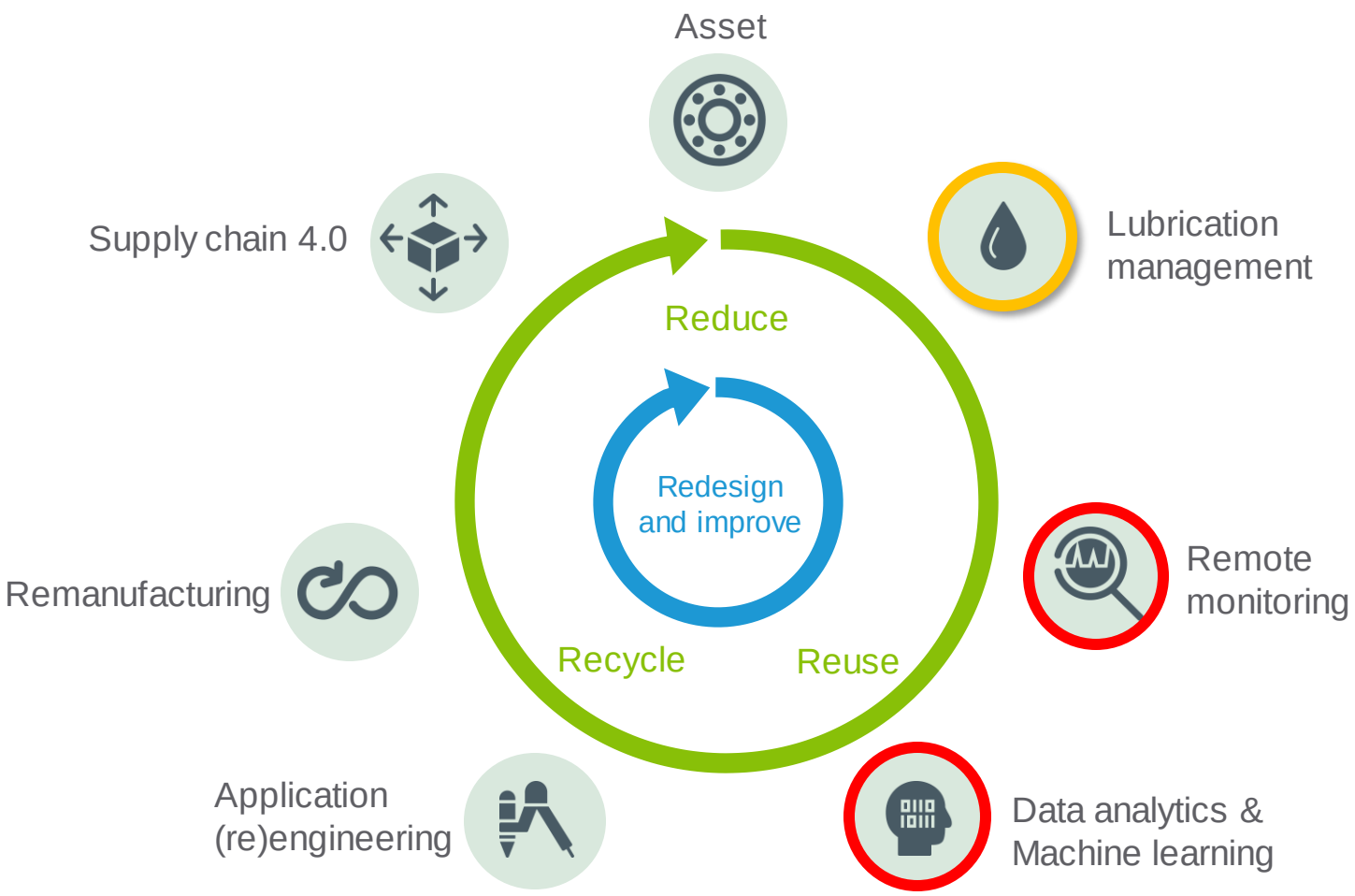
From a linear to a circular economy





From a linear to a circular economy

- Substantially reduce cost and environmental impact with improved efficiency



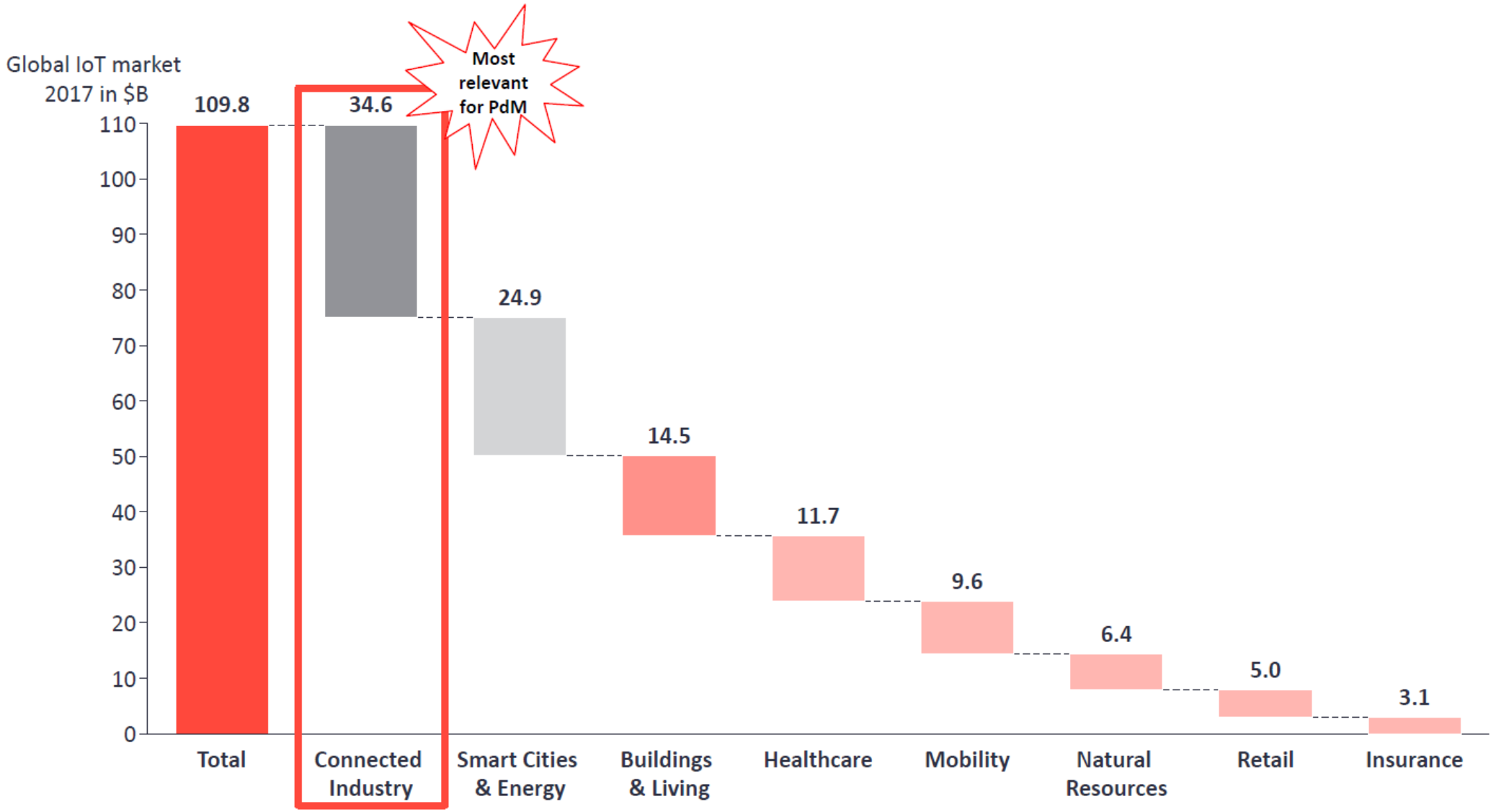
Enablers

Digitalization

Business model:
From transactional
to performance fee-based

Striving for the environment
Striving for sustainability
Striving for clean-tech

Connected Industry is the largest segment for IoT



1. Definition: **Connected Industry** is the largest segment of IoT that specifically focuses on manufacturing, in which industrial assets are connected to the internet.
Source: IoT Analytics Research

Predictive Maintenance: $4.8B in 2019 to $23.5B in 2024 (CAGR 39%)

Up to 50%* reduction in downtime

10-40%* Reduction in maintenance costs

3-5%* Increased machine useful life:

10-25%* Reduction in worker injuries:

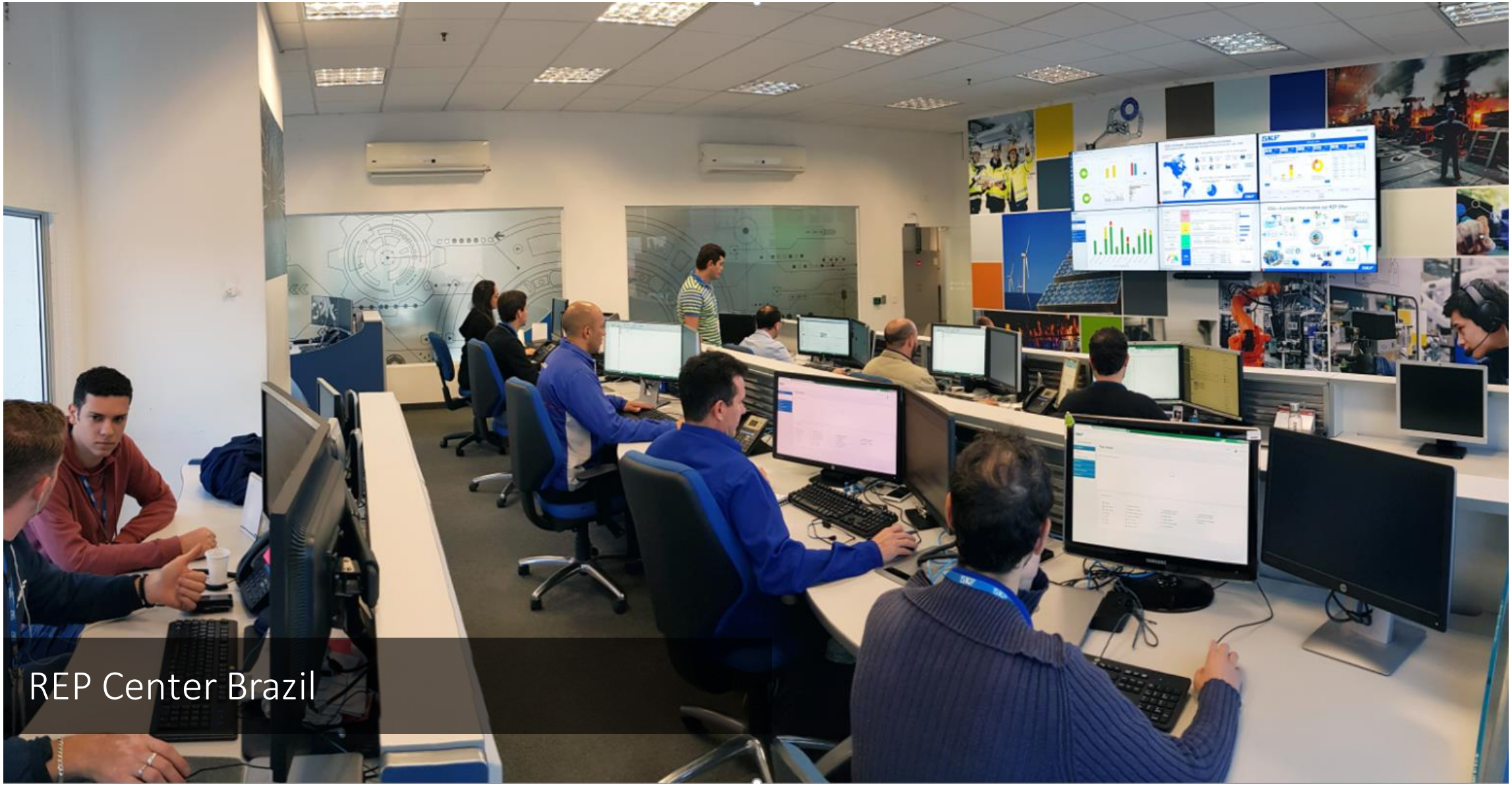
Reduced environmental impact

10-20%* Reduced waste

* Studies on potential of industrial analytics McKinsey (2015)

Remote Monitoring

Remote Analysis

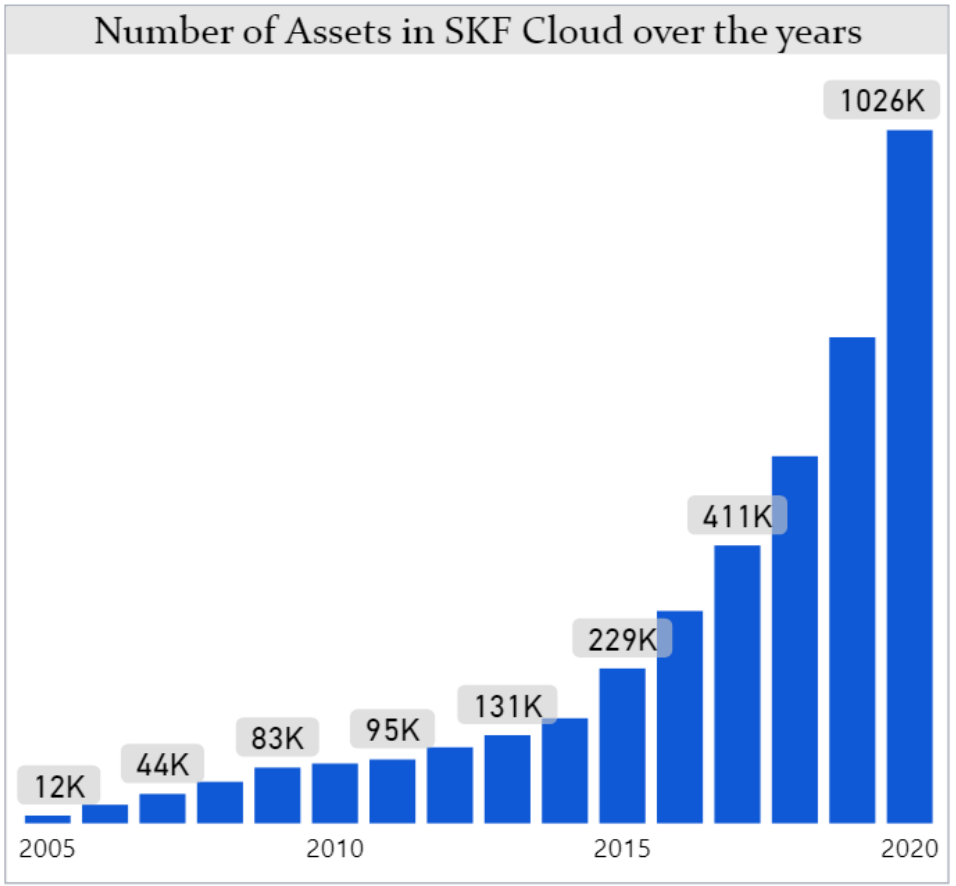


Assets

1M

Bearing

3.1M



Segments

Pulp & Paper
17,873
53,619
1.7%

Food & Beverage
20,002
60,006
2.0%

Energy
3
9
0.0%

Mining
2,283
6,849
0.2%

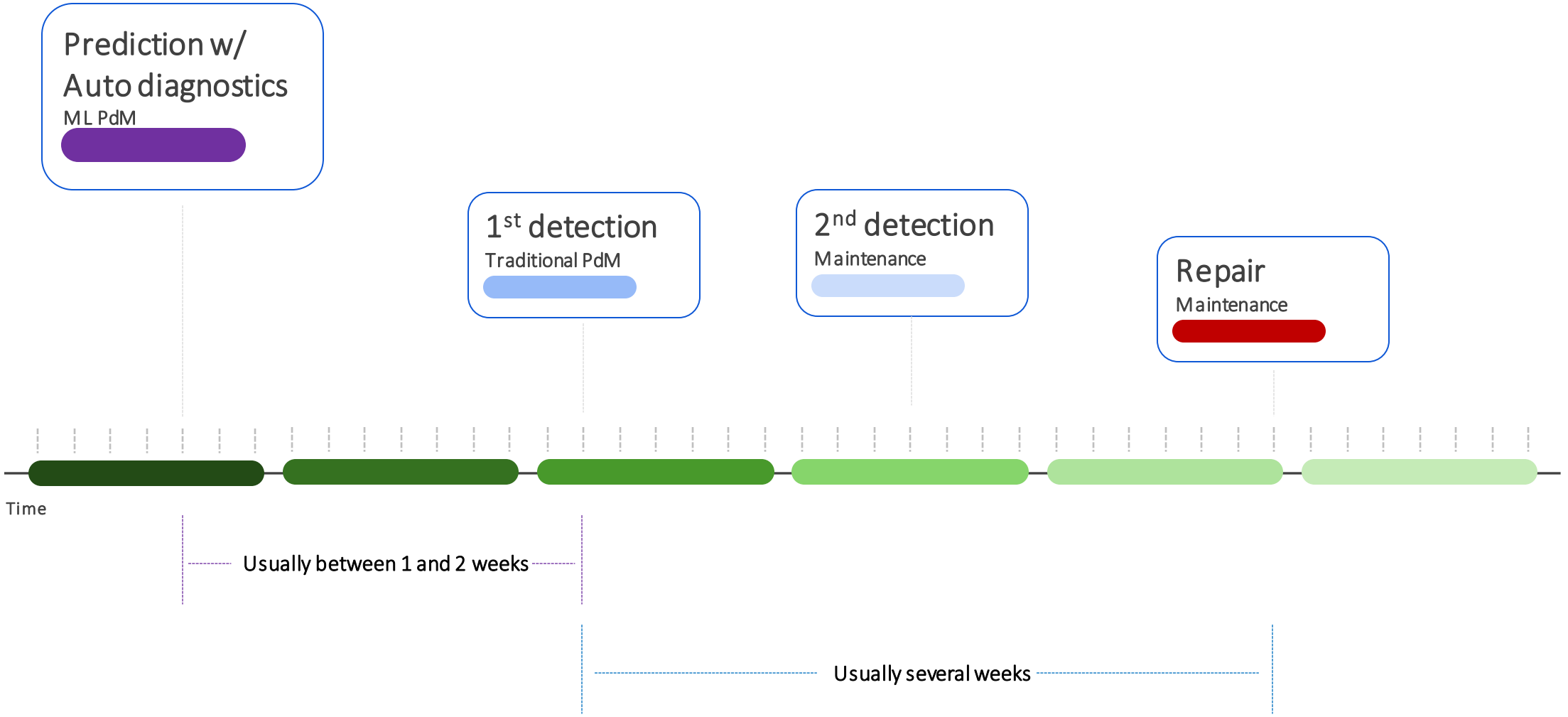
Oil & Gas
4,963
14,889
0.5%

Chemical
6,256
18,768
0.6%

Metal
10,916
32,748
1.1%

Others
963,272
2,889,816
93.9%

Predictions vs Detections



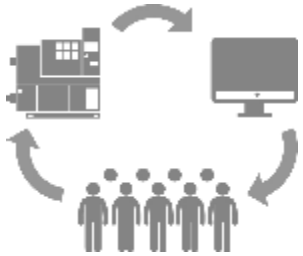
Prediction times will vary depending on data quality and machine complexity

There are various methods for Predictive Maintenance

Acoustic and vibration sensors

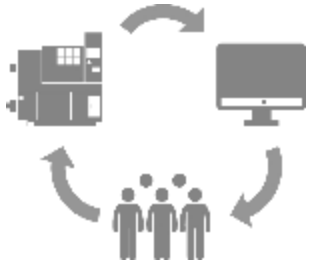
Requires HW manufacturing & deployment

Digital twins and expert analysis



Mechanical eng. works with simulations to manually build a machine model – digital twin

Manual data driven modeling



Data scientists manually build machine model based on historical data

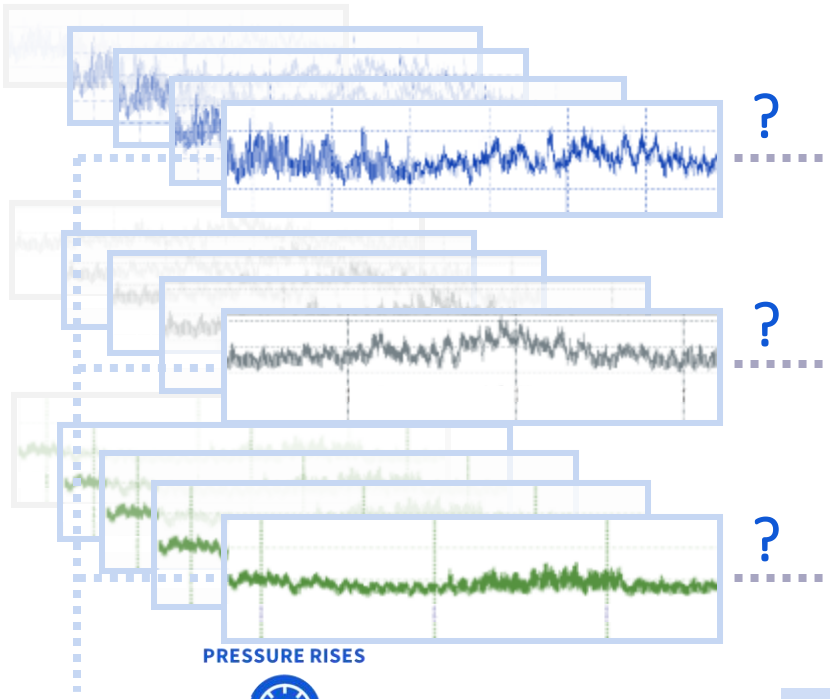
Automated Machine Learning

Unsupervised and automated machine modeling with no people in the loop

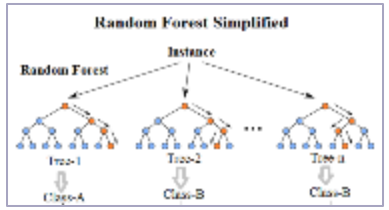
Hardware Based

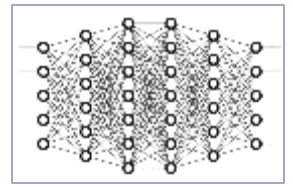
Software Based

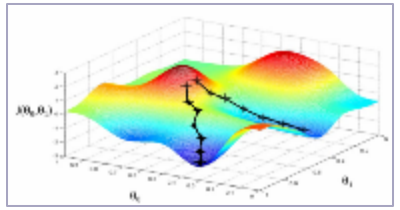
Automated Machine Learning

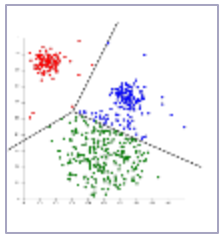


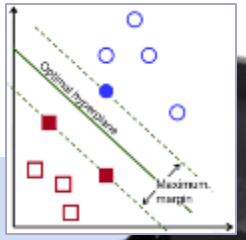
SKF Enlight AI







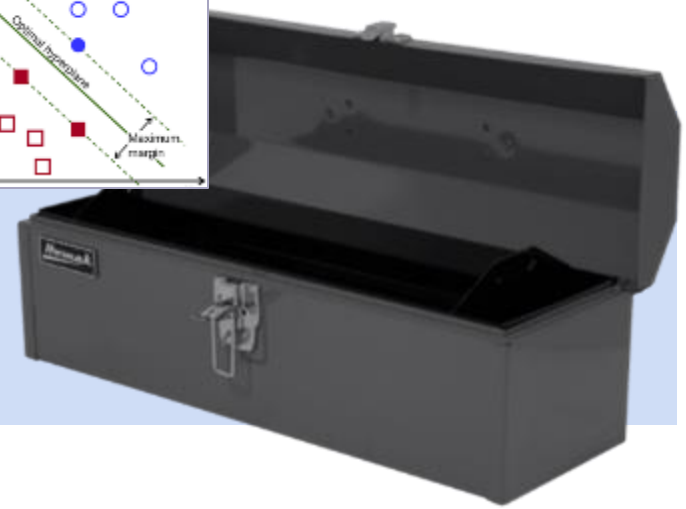




Dozens of algorithms

"**Automated** Machine Modeling":

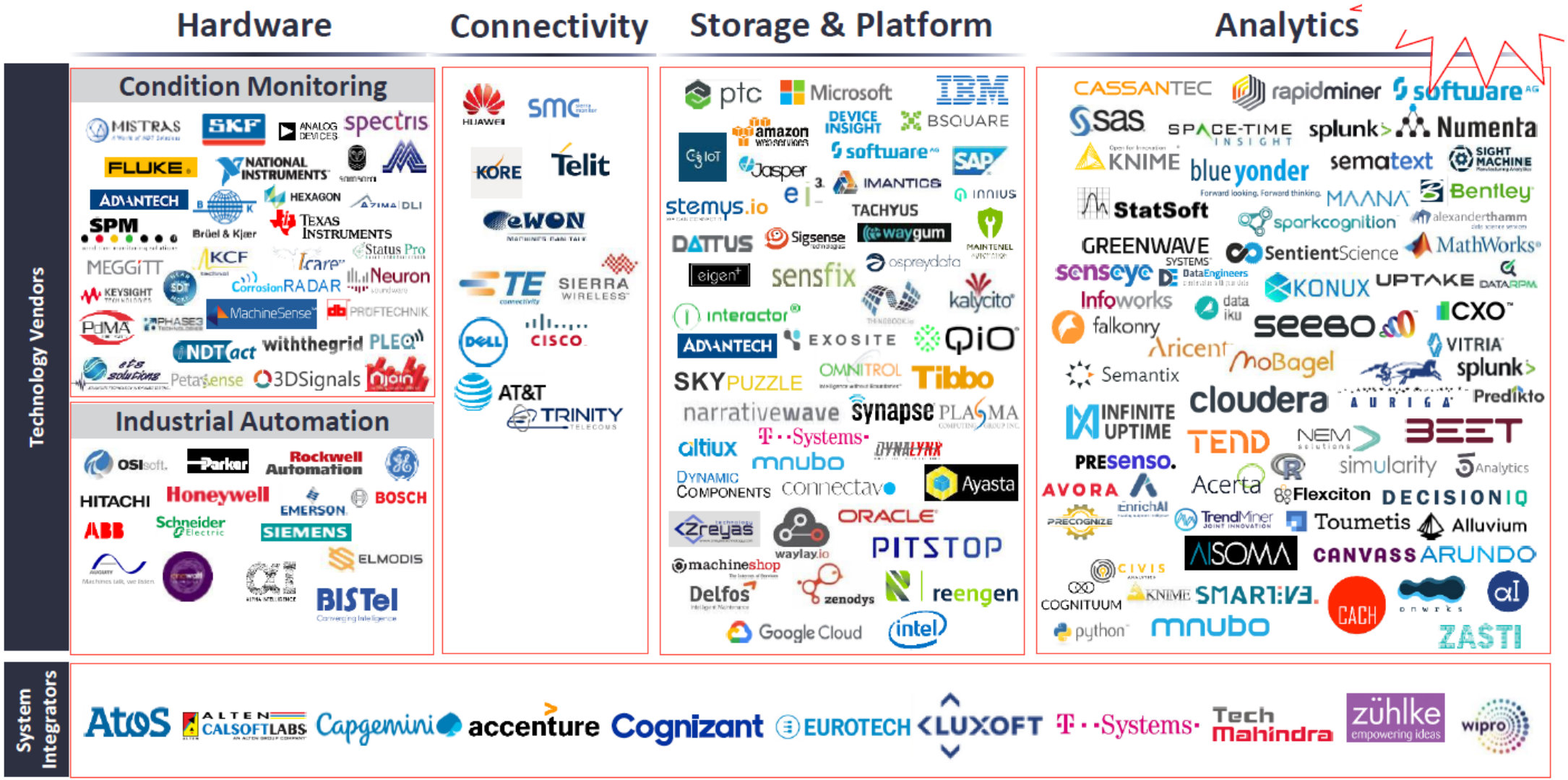
- SW selects its own algorithms
- Generates digital models of machines
- Continuously validates and maintains models



All with clear advantages and challenges

	Acoustic and vibration sensors	Digital twins and expert analysis	Manual data driven modeling	Automated Machine Learning
Accuracy				
Diagnostics				
Scalability				
Time to failure				
Cost				

Where to go? 180+ Companies in the market



Note: Companies are categorized according to their main field of activity, e.g., Industrial Automation; Only companies considered that have a notable use case on PdM; Companies are not mentioned more than once; PdM solutions may also make use of other providers not mentioned here Startups often cover more than just one field and are therefore roughly allocated. Source: IoT Analytics Research

Predictive Maintenance capabilities

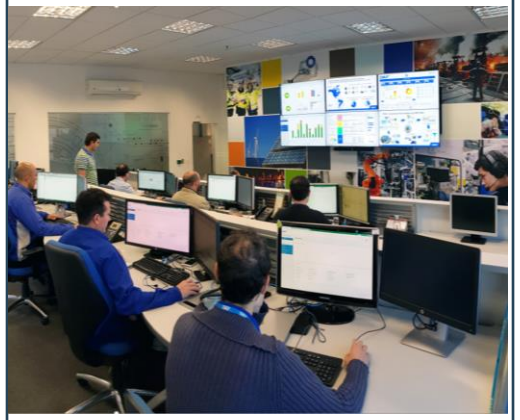
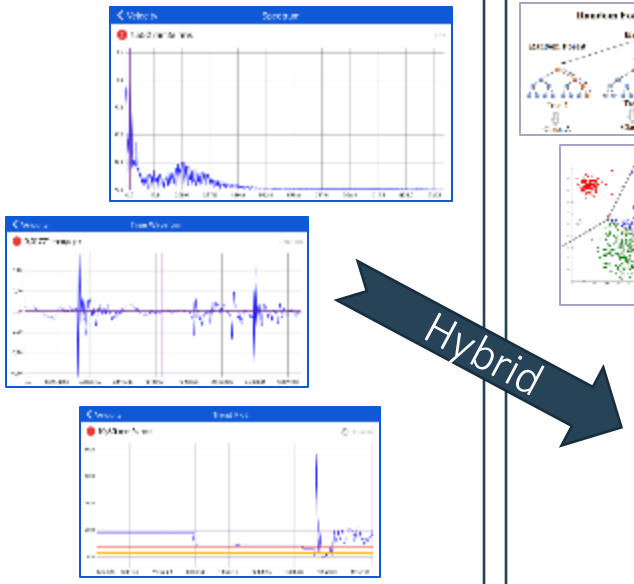
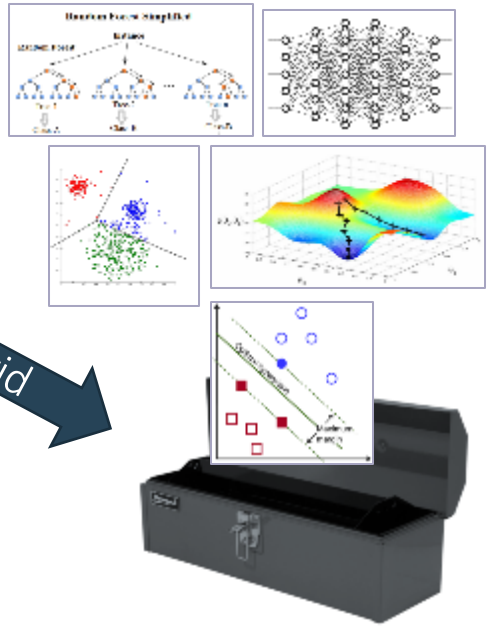
Accuracy

Diagnostics

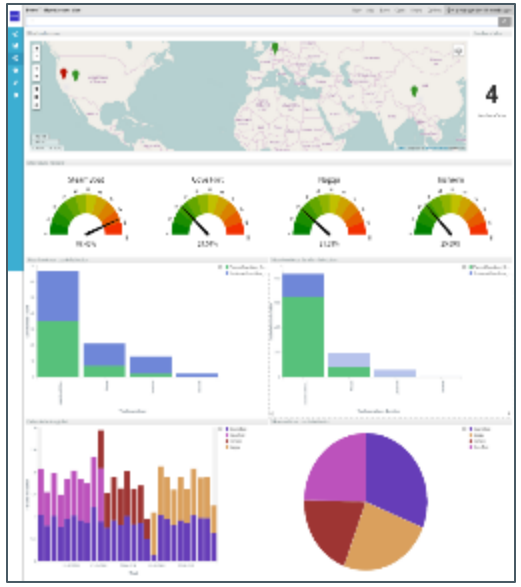
Scalability

Time to failure

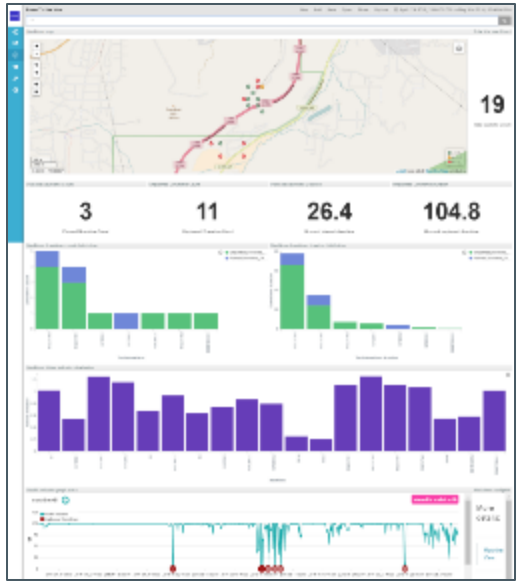
Cost

Acoustic and vibration sensors	Digital twins and expert analysis	Manual data driven modeling	Automated Machine Learning
			
IMx series for online vibration monitoring	Rotating Equipment Performance Centers	AI/ML reinforced with physical know how	Enlight AI

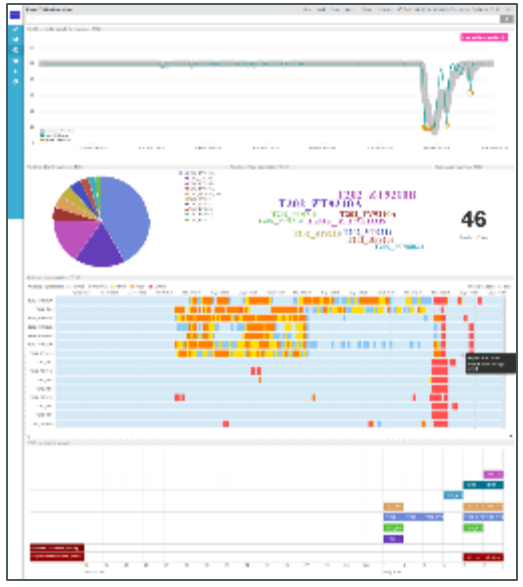
SKF Enlight AI Platform



Global Overview
Compare Site Performance



Site View
Easily compare machines operations



Machine View
Single machine view for a lower level investigation

Sensor View
Sensor raw data available for further technical analysis

Sustainability and Innovation ecosystem – Bruce Walker Ferguson

https://www.youtube.com/watch?v=NcvW1Zmj6Lw


SKF