

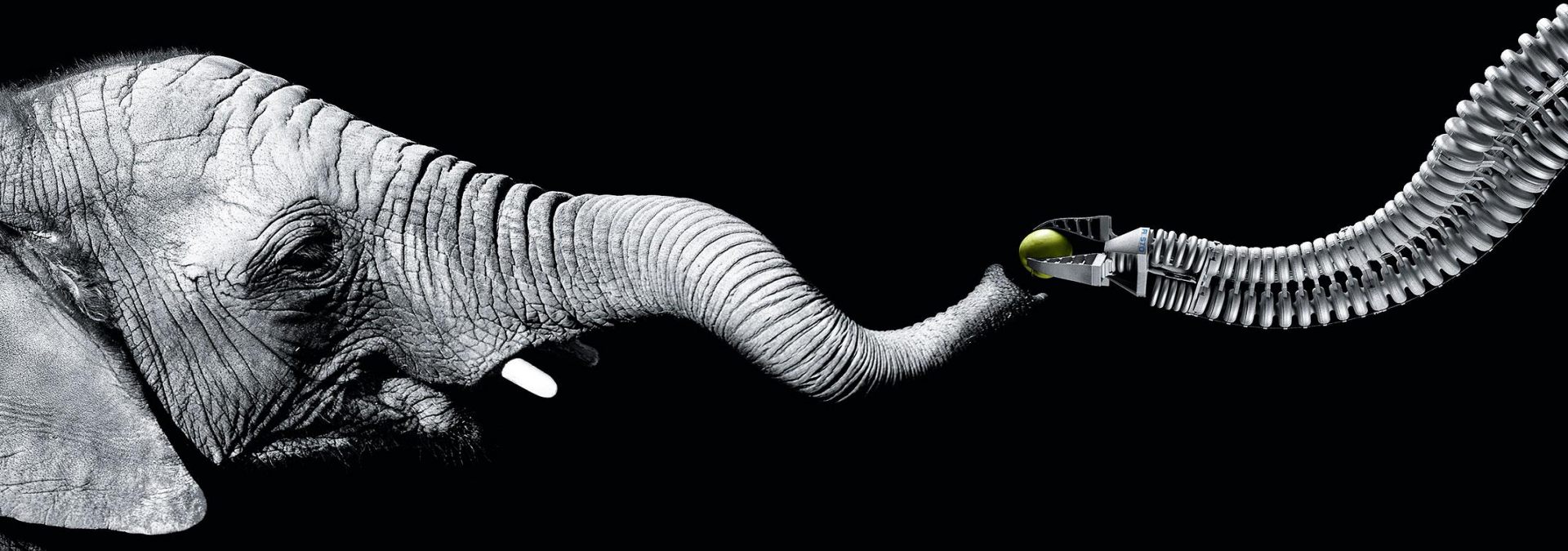


# What SMART Technology implies for the industry of the future

Lee Annamalai

CAM SMART SYSTEMS

# Customised Customer Experiences



# When Cyber meets Physical



INDUSTRIAL  
AGE



INFORMATION AGE



SERVICE  
CONNECTED PRODUCT AGE

# ubiquitous sensible environment

Software enabled machines are able to respond relevantly to real world events



# industrial internet of things

Promises to join the factories, their machines and their products into a connected web of information flows.

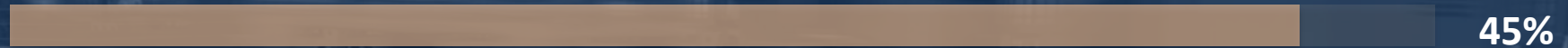
Forms the foundation  
for Industry 4.0

# Top reasons companies want to implement IoT Solutions

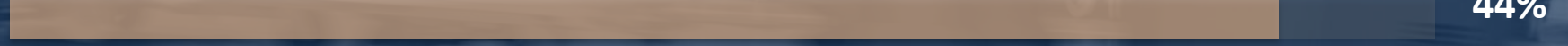
Improving quality of service/product



improving productivity



increase reliability of operations



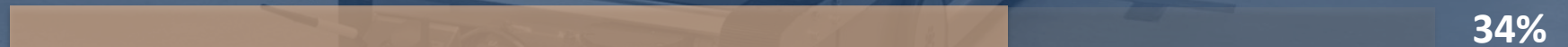
reducing cost of materials and waste



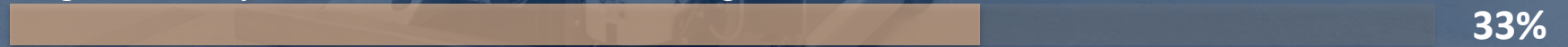
accessing new customers



increase customer satisfaction



insights for new products and services or cost savings



2016 Bain and Company Industry Survey

0 5 10 15 20 25 30 35 40 45 50

# 01

## Production Line is online

machines conditions are continuously measured and analysed, and their various states used to train algorithms which will predict future failure conditions and schedule preventative maintenance

# 02

## Product is connected

Products embedded sensors will relay their state immediately once created which will enable the factory to analyse and optimise the production line if quality deviations are detected





03

product lifecycle  
**will be extended**

Machines and products in the field will relay their status back to manufacturers such that engineers can work on software updates and next generation upgrades which will be pushed over the air.

# 04

## Products become **service intensive**

Products, as advanced as jet engines are instrumented down to individual turbine blades, enabling data to be analysed retrospectively and in realtime such that the appropriate maintenance can be determined and scheduled.

# SMART SPATIAL Solution for Regulatory Compliance





Koeborg Pelindaba



Radiation Key: Normal Offline High Missing

### Sensor Health

GMT

MCA

WES

Moved

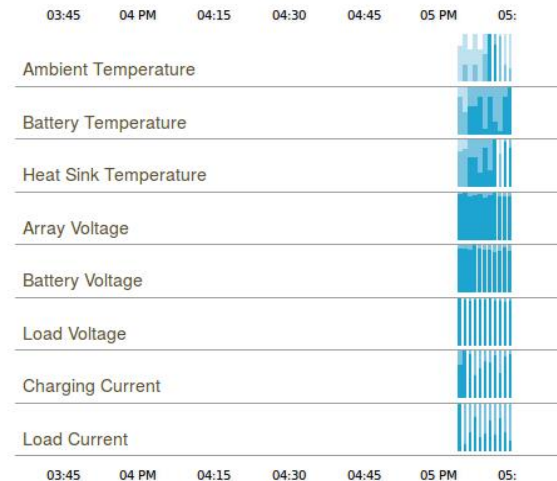
Tampered

#### Key:

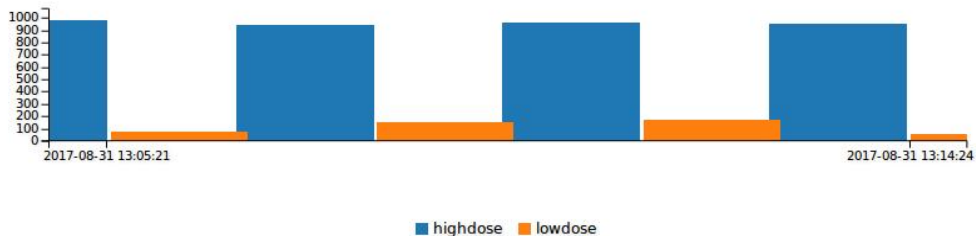
Normal

Abnormal

### Station Health



Temperature °C    Relative Humidity %    Pressure    Wind m/s    Radiation - Counts p/s



### Latest Observations at selected station

Time	Property	Value	Units
2017-08-31 13:15:30	device_tampered	true	
2017-08-31 13:15:36	gmt_error	true	
2017-08-31 13:15:37	wind_direction	1	degrees
2017-08-31 13:15:38	temperature	21	celcius
2017-08-31 13:15:38	humidity	34	%
2017-08-31 13:15:39	wind_speed	5	m/s
2017-08-31 13:15:39	pressure	82	kPA
2017-08-31 13:14:24	highdose	917	p/s
2017-08-31 13:14:24	lowdose	100	p/s

# Digital Disruption in Publishing



## Human Technology

Develop speech and language-related technologies for the South African context to enhance access to information and communication

Author  
Publisher

CSIR – HLT Developers



Audio producers  
Accessibility format provider

Digital Publisher  
eBook Aggregator



SPEECH  
TECHNOLOGY





# Technical challenges that still reduce wide scale adoption

interoperability

information transparency

decision support tools

decentralised decision making

# Connectedness driving new business models

The interesting challenge is to be able to continuously imagine the future world and keep pace with the change so industries remain relevant and competitive





# Thank You

What SMART Technology implies for the  
industry of the future

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**CSIR**  
*our future through science*