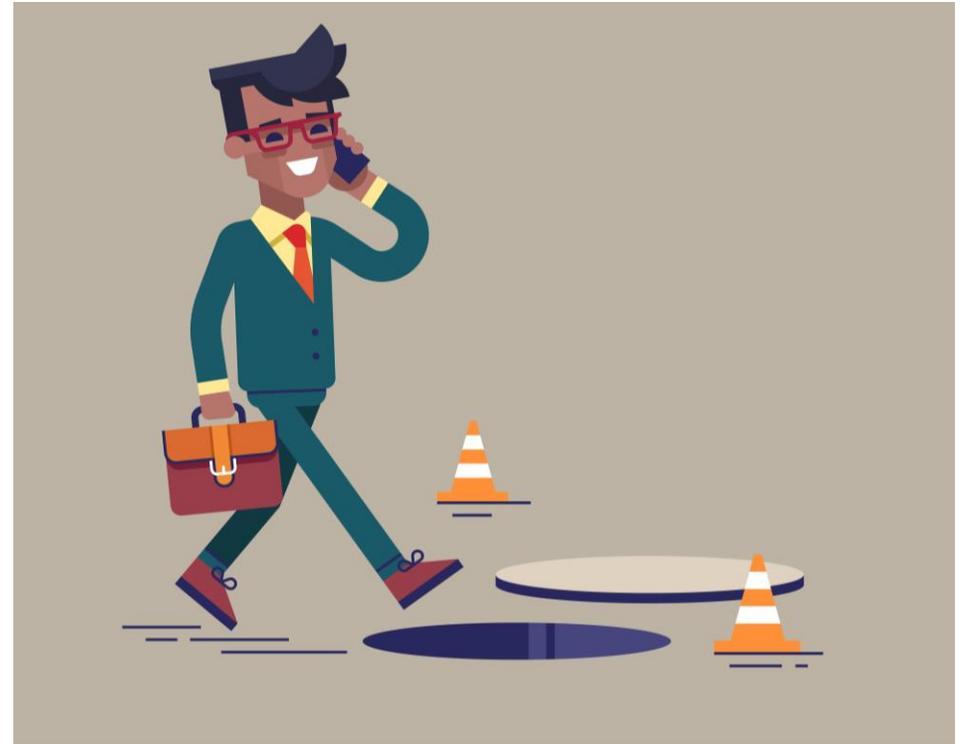

Safety moment

Please stay safe while listening to the webinar

- ❖ If you are driving while listening to this webinar, please use a hands-free device or preferably pull-over
- ❖ Be aware for your surroundings and don't walk while on your phone
- ❖ Familiarize yourself with the nearest evacuation routes, and in case of an emergency do not delay to exit the building
- ❖ Session is being recorded if you need to watch and listen later



Creating value with digital solutions

Introduction



Dr. David Lincoln
Digital Leader
Measurement & Analytics
David.lincoln@gb.abb.com

David Lincoln, ABB Digital Lead for Measurement and Analytics, drives digital transformation for ABB's wide-ranging sensing business which includes analyzer, instrumentation and force measurement solutions.

Previously, David oversaw service Technology, productization and product management for this business. As Technology Manager, he set up the Measurement and Analytics development center in China and supported its growth for five years.

David holds a Master's degree in Mechanical Engineering from the University of Manchester in England and a Ph.D from Cardiff University in Wales. He is based in the UK.



DAVID LINCOLN, JULY 2019

Digital solutions for measurement devices

Measurement made easy for Food & Beverage

Agenda

- 1 Introduction
- 2 Market drivers
- 3 Measurements in F&B
- 4 Solution examples
- 5 Key takeaway
- 6 Q&A



How to make a great loaf of bread

The key to success

1 Recipe (Procedure)

2 Ingredients

3 Equipment

4 Skill

4 Environment



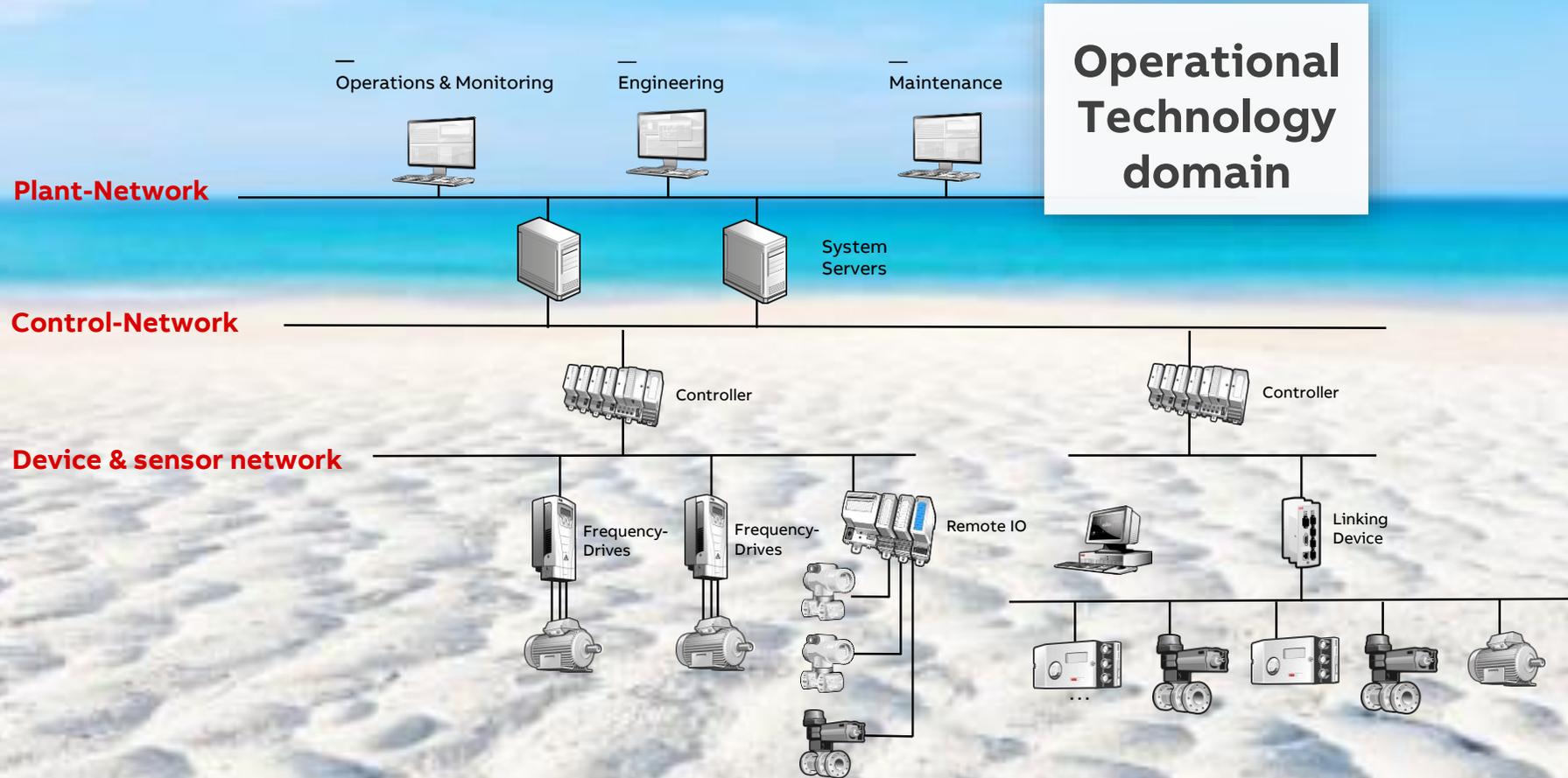
How to be successful making 140,000 loaves each day

The key to success

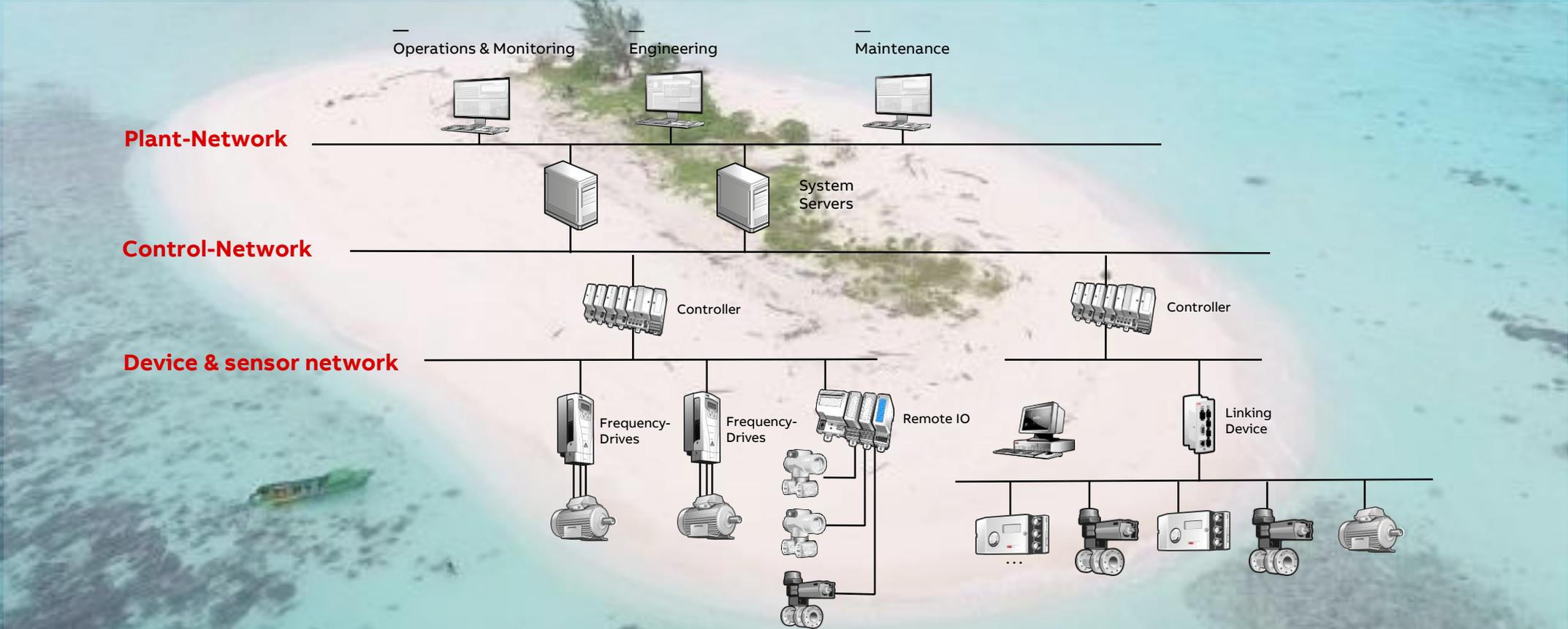
- Recipe (procedure)
- Ingredients
- Equipment
- Skill
- Environment
- Productivity
- Quality
- People
- Regulations



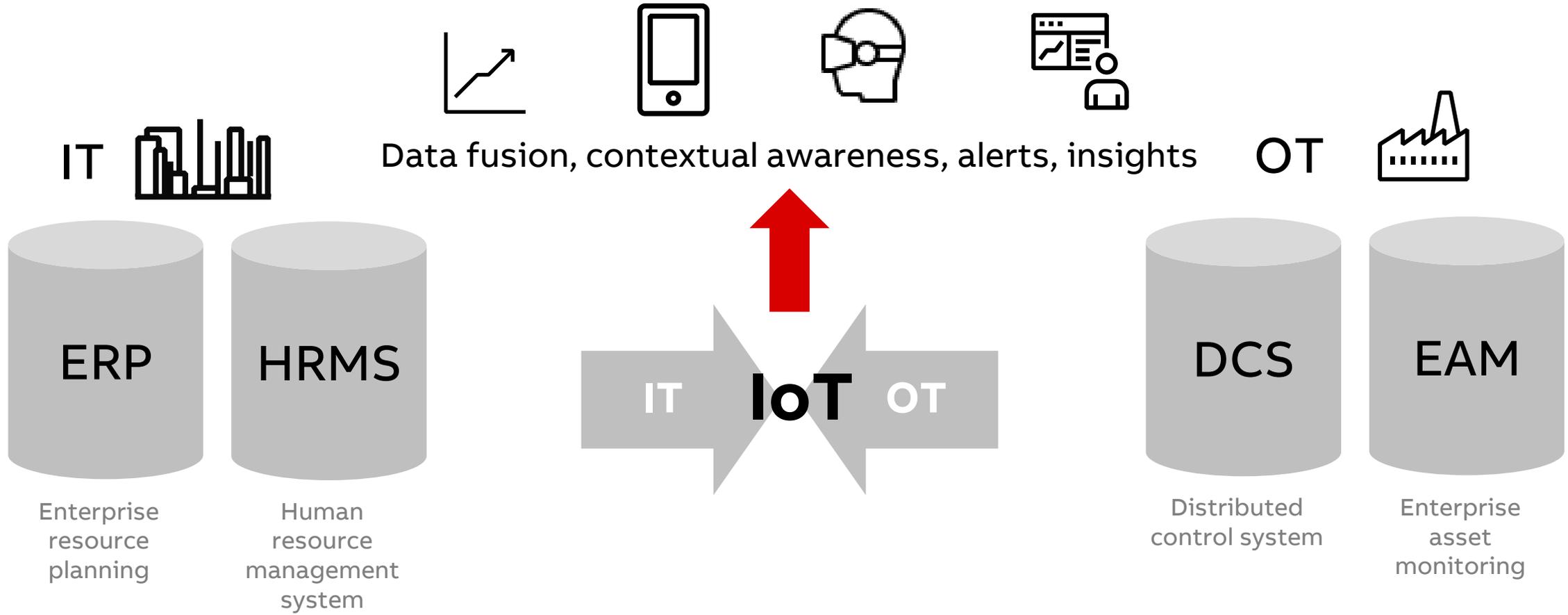
Volume production is dependent on automation systems containing sensors and controllers



A Digital wave of disruption has started to erode the island view



Information Technology and Operational Technology are converging



Penetration of digital technologies is fast paced

2005



Two days after pope John Paul II. died

2013



His successor Benedikt XVI. retired and a new pope was elected

Industrial markets primed to adopt digital technologies

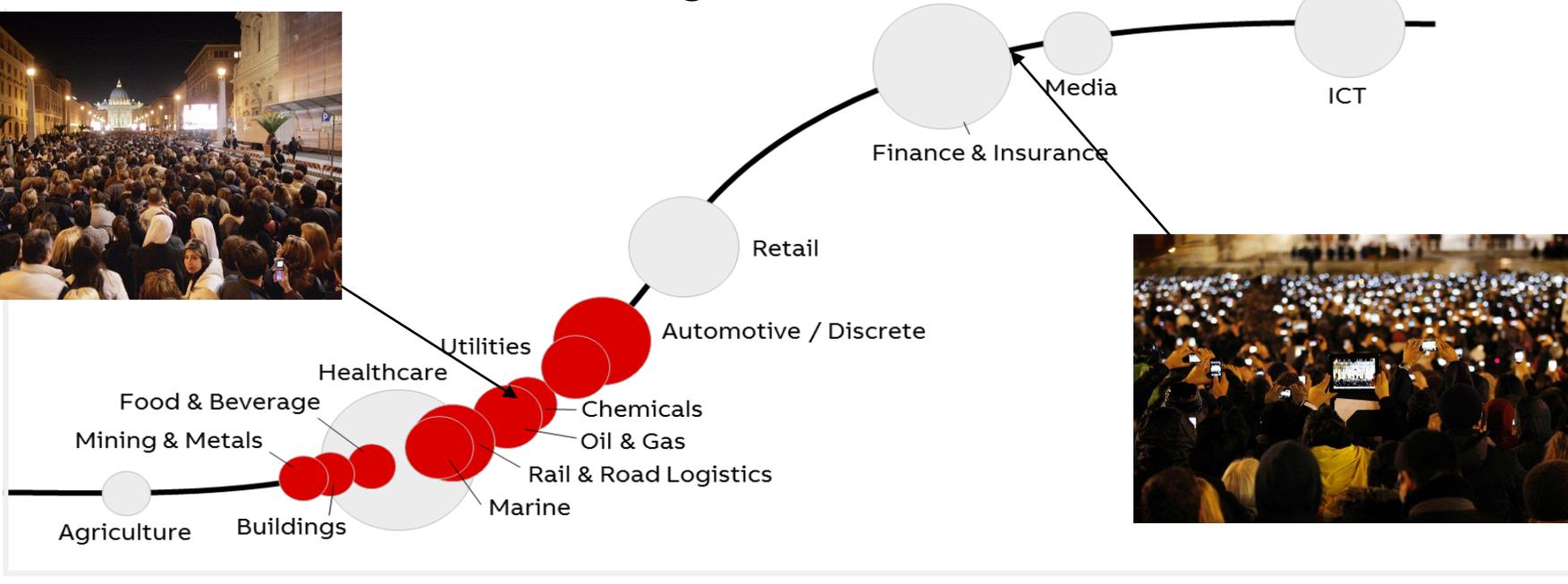
Computing + connectivity + cloud + analytics set to unlock value

Innovations

Level of digitalization



Digital S-Curve



- 1 Touch screen
- 2 Camera
- 3 App store
- 4 3G > Streaming
- 5 Tablet
- 6 Sensing (GPS...)

Time

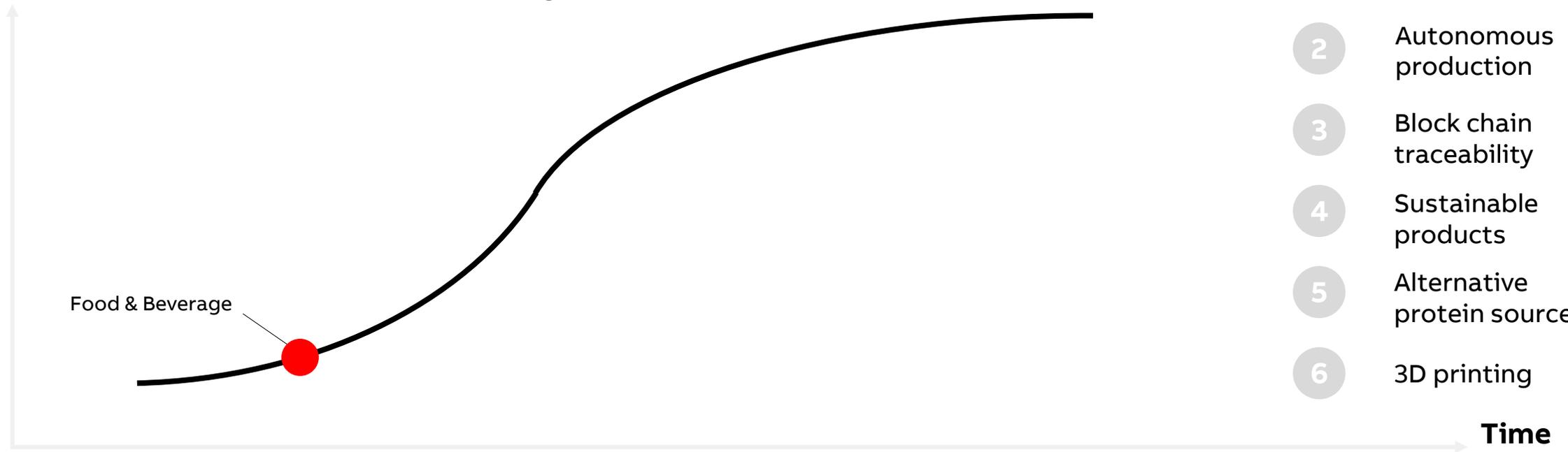
Industrial markets primed to adopt digital technologies

Computing + connectivity + cloud + analytics set to unlock value

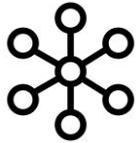
Innovations

Level of digitalization

Digital S-Curve



Digital solutions can be targeted to specific customer needs



Connectivity



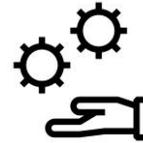
“I run many sites and need quick access to a range of productivity data 24/7”



Skills



“My team keep retiring, I need simple solutions to ensure new starters can maintain and operate the plant effectively”



Productivity



“I need ways to increase output using my limited engineering resources and budget”



Regulatory



“I need safety related data available when I need it without having to look through paper records”

ABB Digitally enabled smart devices for Food and Beverage processes

Evaporator

Flow meters, pressure, temperature, Conductivity, pH, Recorders, Controllers, Actuators, Level, Positioners

Storage silos

Flow meters, temperature, Recorders, Controllers, Level

Water Treatment

Flow meters, pressure, temperature, Conductivity, pH, Recorders, Controllers, Actuators, Level, Positioners

Filling line (Bottles / cans)

Flow meters, Recorders, Controllers

Retort control

Pressure, Recorders, Controllers, Actuators, Positioners

Mixing / blending vessels

Flow meters, temperature, Recorders, Controllers, Level

Heat exchangers

Pressure, temperature, Conductivity, Recorders, Controllers

Cold storage

Temperature, Recorders, Controllers

Control room

Recorders, Controllers

Pasteurizers

Flow meters, temperature, pressure Recorders, Controllers, Positioners

Clean in place station

Pressure, conductivity, pH, Recorders, controllers, Positioners

Boilers

Flow meters, pressure, temperature, Conductivity, Oxygen, emission monitoring, pH, Sodium, Silica, Recorders, Controllers, Actuators, Positioners

ABB Digitally enabled smart devices for Food and Beverage processes

Flow



Positioners



Pressure



Recorders | Controllers



Temperature



Water analysis



Level



Gas analysis incl. CEMS



Alcohol blending measurement solution

Delivering Regulatory adherence | Improved quality | Increased productivity

Customer need

- **On-line measurement** of alcohol concentration
 - **Today using manual** portable meter
 - Manual measurement and recording every 4 hours
- **Regulations** | QMS require online measurements and storage of data for 2 years minimum

ABB Solution

FCB450 Coriolis Mass flowmeters with integrated DensiMass¹ software for measurement of Mass Flowrate, Density, Temperature, Concentration

Paperless Recorder RVG200 analyzing blend data

- Concentration
- Temperature
- Mass flowrate
- Density
- 24 channels recording data logging for up to 6 bottling lines.

Data manager Pro Software

Remote back-up of data, analyzes alarms / trends

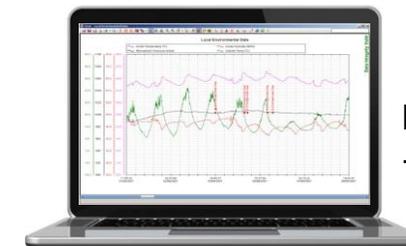
Physical + digital Solution



Measurement + Densi-mass software



Blend data analysis + Data recording



Remote data back-up + data analysis

Alcohol blending measurement solution

Much more than just a measurement

Online device management

ABB Ability™ Field Information Manager*

- Configuration
- Commissioning
- Maintenance



Productivity

Device health and accuracy check

ABB Ability™ Verification for measurement devices*

- Maintenance
- Troubleshooting



Productivity

On-site self-support

My Measurement Assistant*

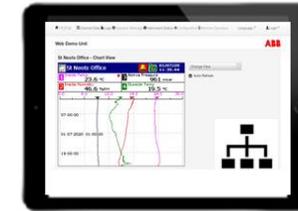
- Step-by step assistance
- Downloadable action reports



Skills

Remote data access

Connectivity

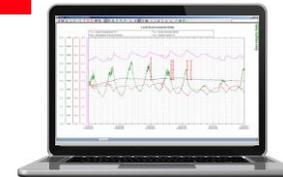


Web server*

- Access diagnostics and performance data via any internet browser
- Ethernet enabled

Data manager Pro

Regulatory



Data analysis software

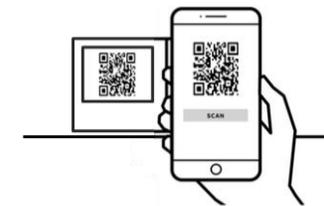
- Manage, analyze and store data archives

Productivity

Fast fault diagnosis and tech support

Dynamic QR code technology*

- Share device ID + system health data via QR codes
- Email or use ABB's My Installed Base app to receive support





Skills

Up-skilling operators & maintainers with Guided self-service support

My Measurement Assistant



Free tool



Video tutorials



Checklists



Contact us



Spare parts catalog



Error code checking



Access the web-app today

<https://my-measurement-assistant.marketplace.abb.com>



Coriolis flowmeter



Hygienic Master



Process Master



Vortex/Swirl Master



Pressure



Temperature



Positioners



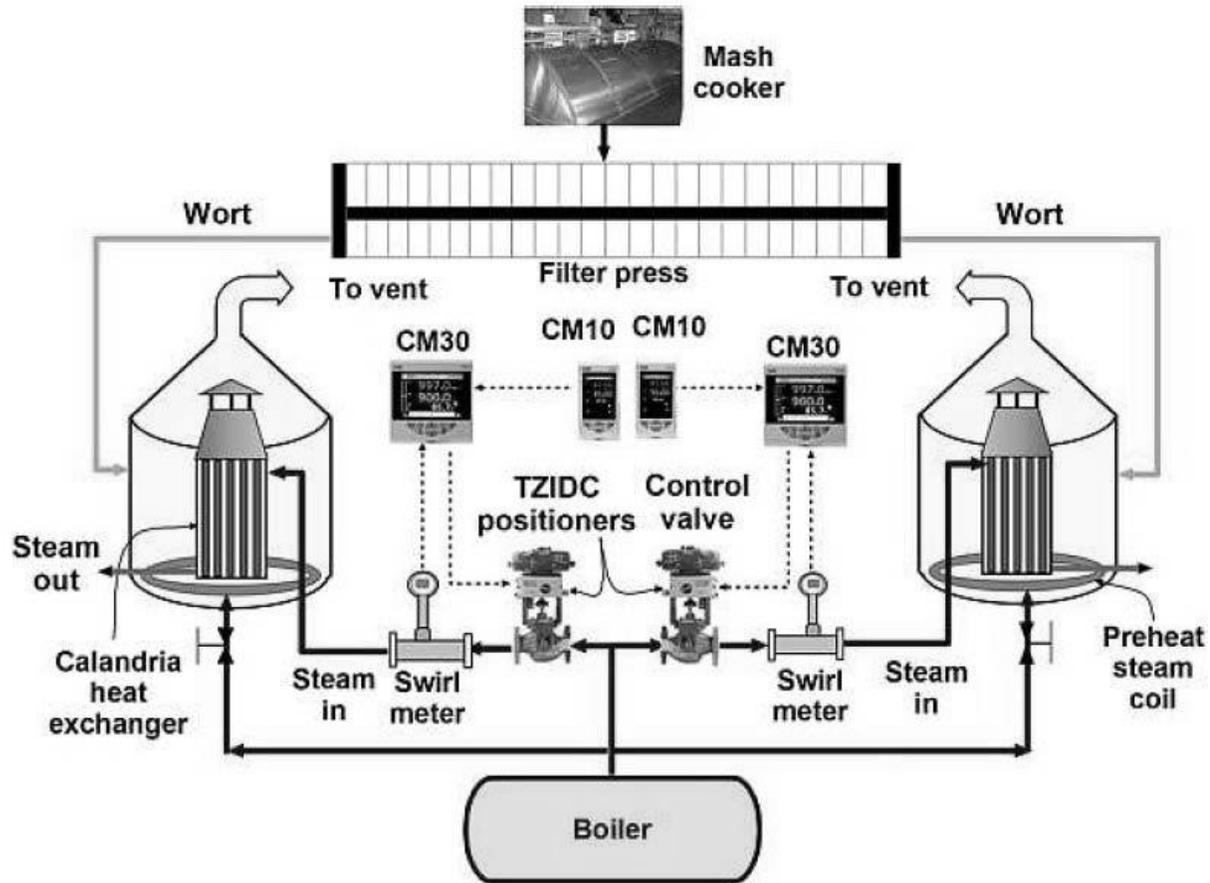
Thermal mass flow

Released

Q3-2020

Beer brewing operation

Delivering highest possible measurement accuracy in challenging application



Process

Measure and compute mass flow rate of steam control heat for boiling the wort*



Challenge

Avoid expense of re-piping the brew house to achieve higher accuracy



Solution

ABB's swirl flowmeters allow **highest accuracy** with lowest inlet and outlet sections



Suite of high value apps to lower cost of ownership and enhance productivity

Smart device surrounded with Digital solutions that address customer needs

Online check of device health and accuracy

ABB Ability™ Verification for measurement devices*

- Maintenance
- Troubleshooting



← Productivity →

Online device management

ABB Ability™ Field Information Manager*

- Configuration
- Commissioning
- Maintenance



Swirl flow meter

On-site support

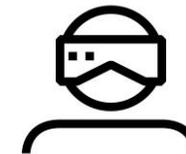
My Measurement Assistant*

- Step-by step assistance
- Downloadable action reports
- Access the app now



Augmented / Virtual Reality support

ABB Remote Insight



← Skills →

ABB Ability™ Verification for measurement devices

The best possible check of measurement accuracy, without removal from the process



Productivity



Free Software*



Test reports



Predictive maintenance



Flexible license options



Coriolis flowmeter



Electromagnetic Flow meter



Vortex/Swirl Master



Thermal mass flow



Level



Pressure



Temperature



Positioners

Easy to use

Fast

Reduces downtime

Helps with Quality control

Released

Q3-2020

Customer expectations are changing

Typical buying journey example

1

Awareness

1 Reliable, accurate measurement

2 Total cost of ownership

3 Is my asset future proof?

2

Education

3

Decision



I need Level measurement during mixing to improve product quality

Customer expectations are changing

Typical buying journey example

1

Awareness

2

Education

3

Decision

- 1 Reliable, accurate measurement
- 2 Total cost of ownership
- 3 Is my asset future proof?

ABB



LLT100

Lasers are changing level measurement

I need perfect measurement, low cost of ownership and security that my Level solution will still be relevant in 6 years time

Customer expectations are changing

Typical buying journey example

1

Awareness

2

Education

3

Decision

I choose this Level solution

- 1 Reliable, accurate measurement
- 2 Total cost of ownership
- 3 Is my asset future proof?



Device health and accuracy testing

ABB Ability™ Verification for measurement devices

- Commissioning
- Maintenance



Laser level

ABB LLT100

- Detect any liquid without calibration
- Narrow beam, filtering of blade interference if required

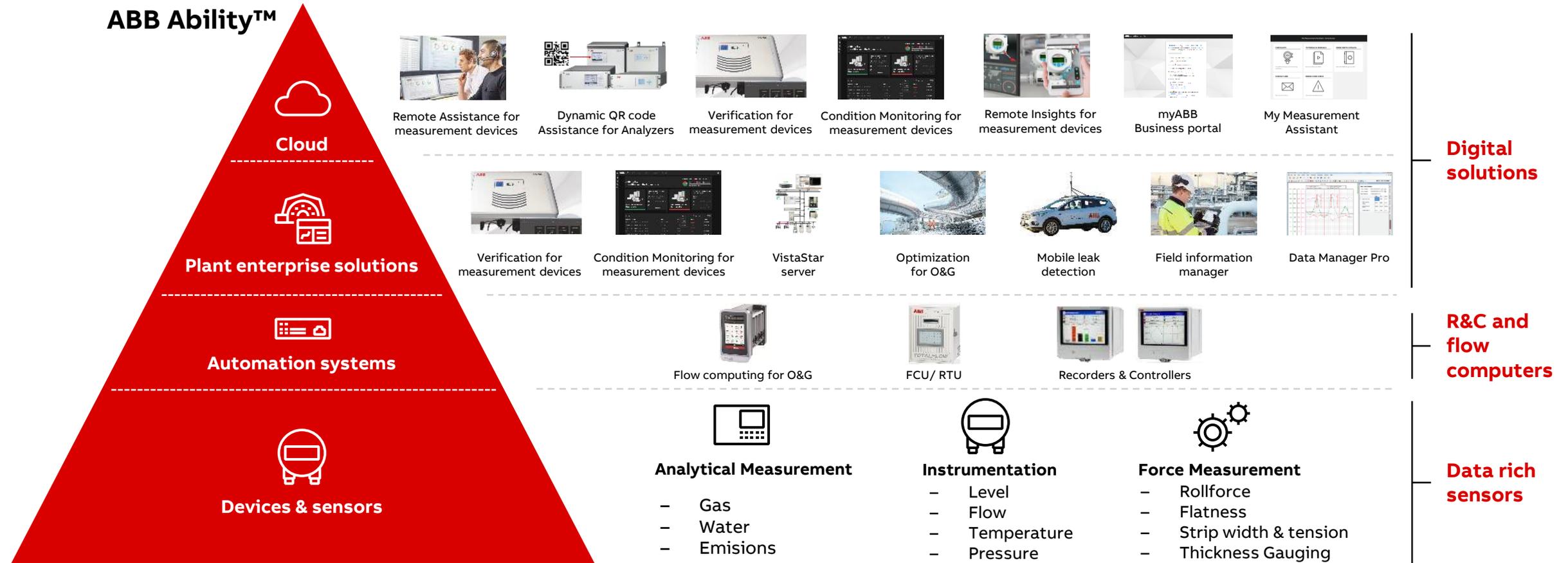


Device management

ABB Ability™ Field Information Manager

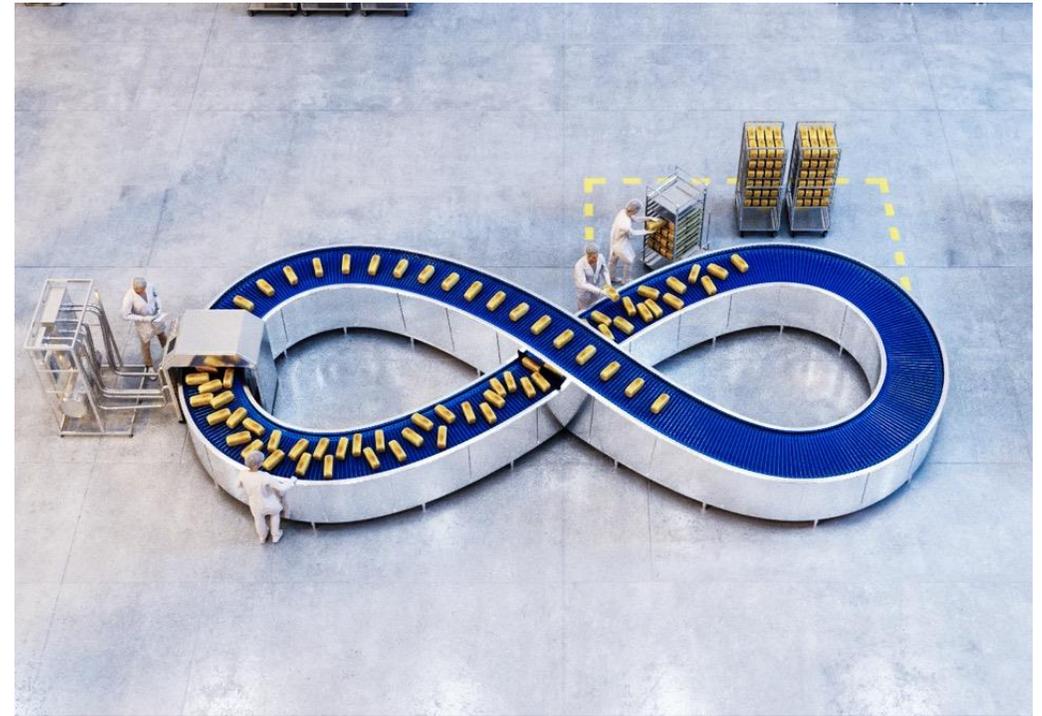
- Configuration
- Commissioning
- Maintenance

All Manufacturers investing heavily in SW above the device level



Key takeaways

- 1 Digital creates new value opportunities often without significant customer investment
- 2 Solutions can target specific customer needs
- 3 Solutions are more and more a combination of the physical devices and software
- 4 Talk to ABB today about your solution needs for tomorrow and let's co-innovate



Infinite possibilities in future



Contact me:

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Visit ABB Advance Digital Service webpage



<https://new.abb.com/products/measurement-products/service/advanced-services>

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