

BASF 4.0

Leading the digital transformation in chemicals

FEDERCHIMICA - Chemistry 4.0 BASF Advanced Manufacturing

Uwe Hinsen
Milan, June 29th March 2017

 **BASF**
We create chemistry

BASF Bericht 2016
Ökonomische, ökologische und
gesellschaftliche Leistung



 **BASF**
We create chemistry

- 1** BASF INTRODUCTION & DIGITAL VISION
- 2** USE CASE 1: AUGMENTED REALITY
- 3** USE CASE 2: PREDICTIVE MAINTENANCE
- 4** SUMMARY & RECOMMENDATION

1 BASF INTRODUCTION & DIGITAL VISION

2 USE CASE 1: AUGMENTED REALITY

3 USE CASE 2: PREDICTIVE MAINTENANCE

4 SUMMARY & RECOMMENDATION

BASF global production community



● Selected research sites ● Verbund sites ● Selected production sites ● Regional centers

Chemicals come with a few particularities

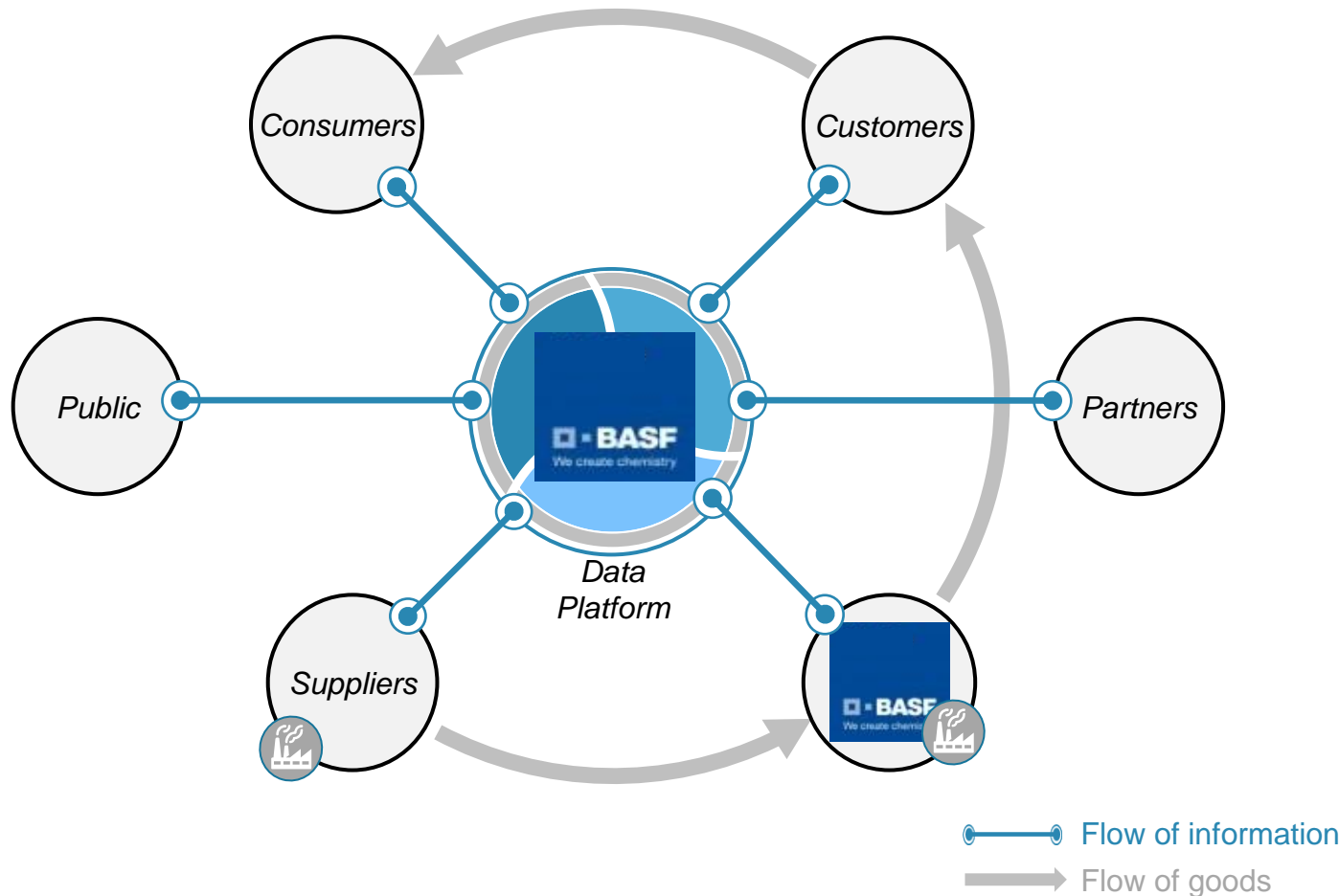
Chemicals are ...

- Components / ingredients in a broad range of industrial applications and consumer goods
- Key to innovative solutions
- Subject to specific regulations (e.g., risk of explosion, toxicity, dual use)

Their production is typically automated and requires a high level of safety and security precautions.



Leading the digital transformation in chemicals



BASF's digital vision

BASF adds value to customers through digitally enabled products and services.

BASF enhances effectiveness and efficiency through horizontally and vertically connecting value chain data and applying advanced data analytics to enhance decision making.

The BASF team understands and leverages the value of data and new digital technologies.

1 BASF INTRODUCTION & DIGITAL VISION

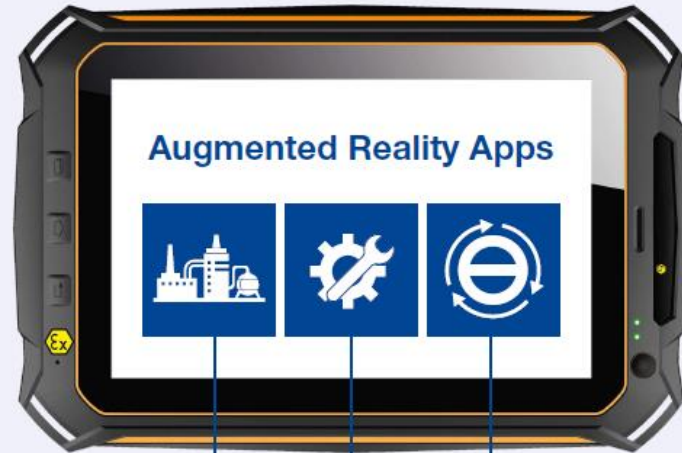
2 USE CASE 1: AUGMENTED REALITY

3 USE CASE 2: PREDICTIVE MAINTENANCE

4 SUMMARY & RECOMMENDATION

Augmented Reality

Target & Approach



Operations



Maintenance



Turnaround



Workforce
Efficiency

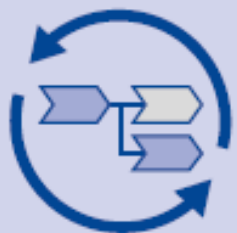


Potential
Errors



Know-how
Transfer

Augmented Reality Rollout



Butadiene,
Steamcracker

15



70



420 in total



2016

2017

2018

2021

Agenda

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4 SUMMARY & RECOMMENDATION

Predictive Maintenance

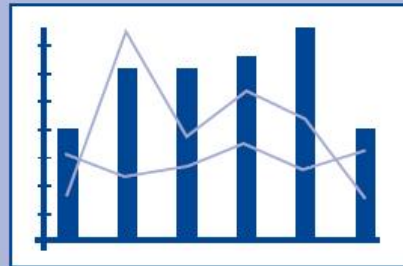
Target & Approach



Big Data



Advanced Analytics



Process Know-how



Reliability

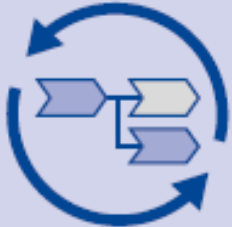


Unexpected
Shutdowns



Transparency

Predictive Maintenance Rollout



Steamcracker

6



25



100

in total



2016

2017

2018

2021

Agenda

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4 SUMMARY & RECOMMENDATION

CEO must drive the project

Dedicated team must be in place reporting directly to the CEO

Define a clear vision – start with lighthouses – rollout

“BASF adds value to customers through digitally enabled products and services. (...) Our team understands and leverages the value of data and new digital technologies.”

Kurt Bock, CEO

