



**BILFINGER**

# BCAP<sup>®</sup>

**Bilfinger Connected  
Asset Performance**

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**The AI and IoT solution for the process industry**



### **Innovation & Improvement Manager**

*„Who understands my needs and evolves my ideas?“*

*“Who can help to digitize our processes?“*

*“Is it possible to combine all the data?“*



### **Managing Director**

*“How to deal with evidence-based compliance?“*

*“How to grow while facing increased price pressure?“*

*“How can I optimize my asset lifecycle?“*



### **Production & Plant Manager**

*“How can we reduce costs and be more flexible?“*

*“How can we improve OEE further?“*

*“Why does the plant not perform as expected?“*



### **Maintenance Manager**

*“Can we reduce the unplanned downtime?“*

*„How can we benefit from synergies?“*

*“How can I reduce maintenance costs?“*



**90%** of the world's data was  
created in last 2 years.

Less than **0.5%** was analyzed  
to create business value.



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## BCAP unlocks the potential of isolated data



# Benefit from the knowledge of 30,000 industry experts



Rotating Equipment



Engineering & process optimization



Industrial Data Science



Process integrity & Safety



Reliability Engineering



Industrial Automation



Analytical Process Technology

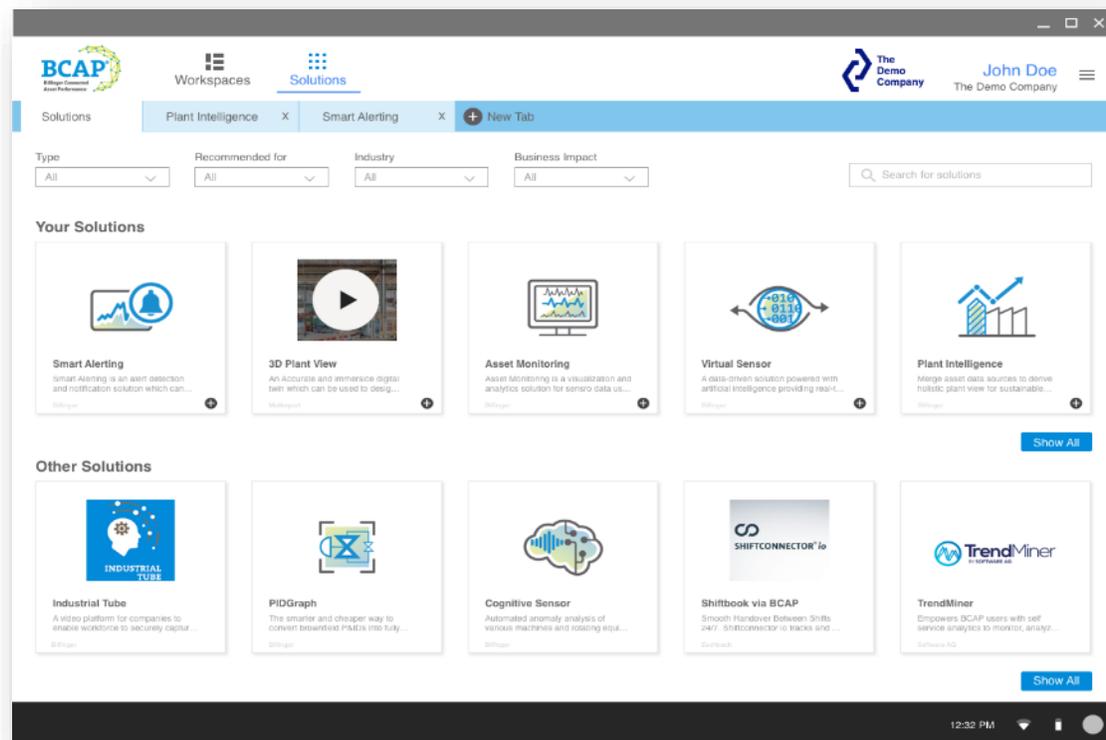


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## BCAP SOLUTIONSTORE

*“Industry-proven applications on demand”*

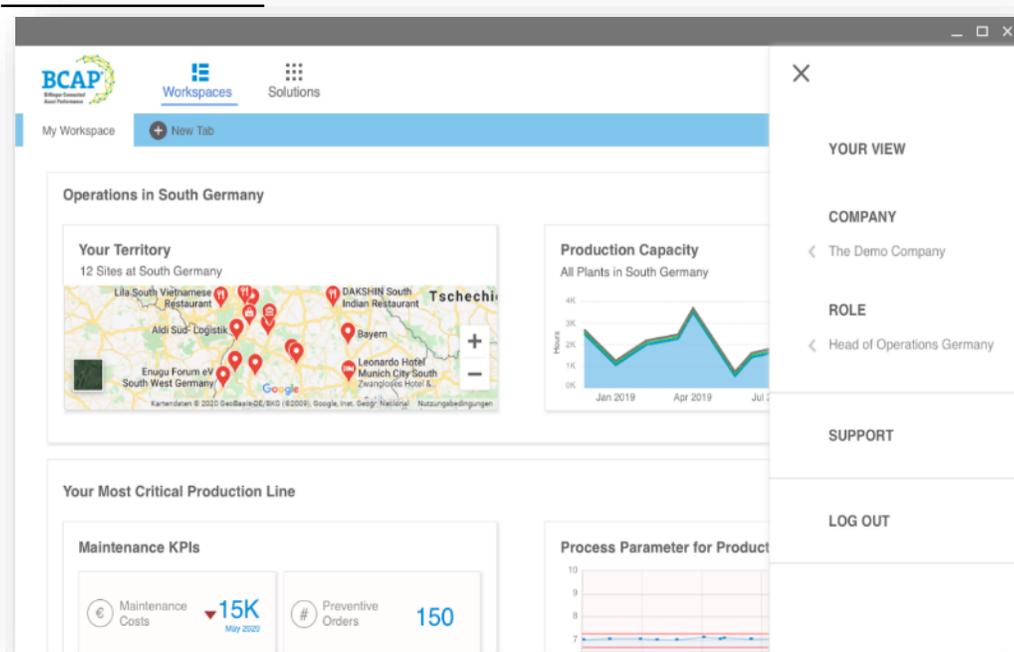
- **Benefit from our experience.** Access to proven software & service solutions
- **Increasing portfolio.** Our eco-system grows continuously
- **Achieve real value.** We not only deliver applications, but solutions
- **Discover our solutions without risk.** No expensive licenses and investments, but pay-per-use



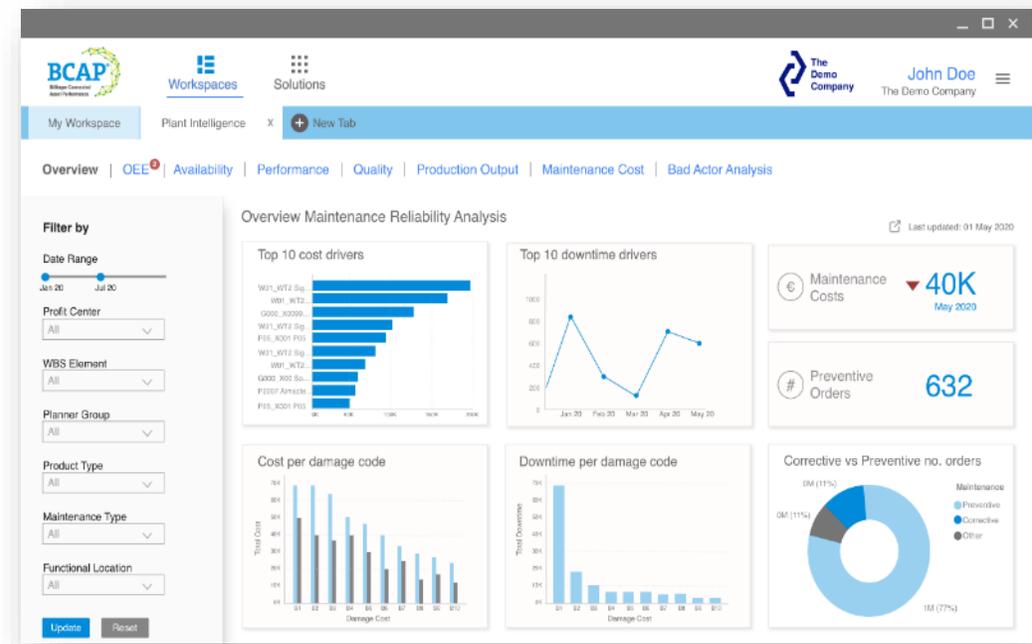


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## BCAP: Role-based solution for data-driven decision making



BCAP supports role-based access to the information and solutions. E.g. the Head of Operations may have access to other information than the operator.



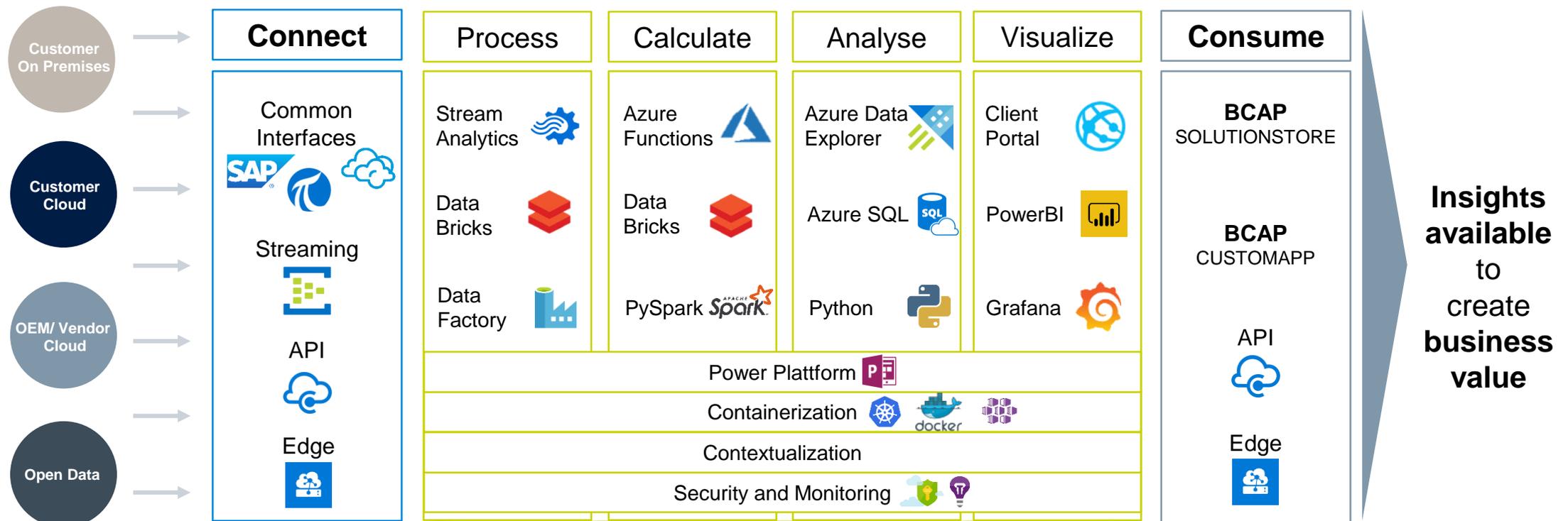
All plant intelligence in one place: For data-driven decision-making, BCAP provides best-in-class dashboards for comprehensive reports and KPIs.





# BCAP

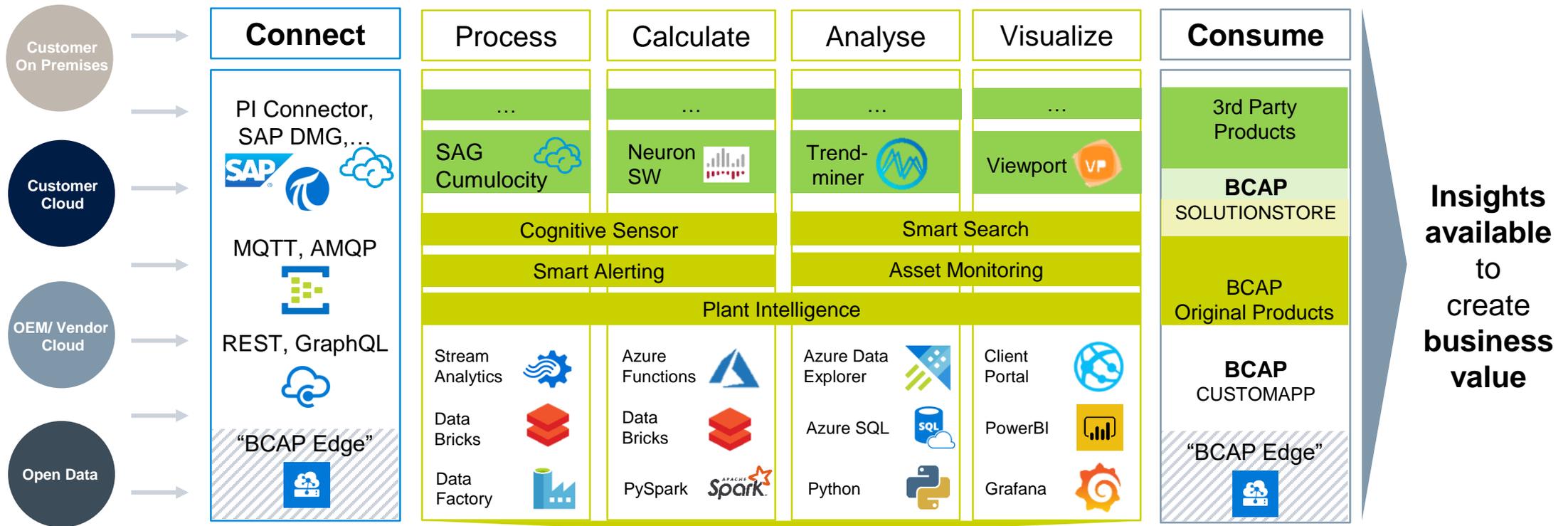
Leading and cutting-edge technologies as basis for the development of our applications



Capabilities powered by BCAP on Azure

# BCAP

Ready-made applications and leading software products lead to unlimited capabilities



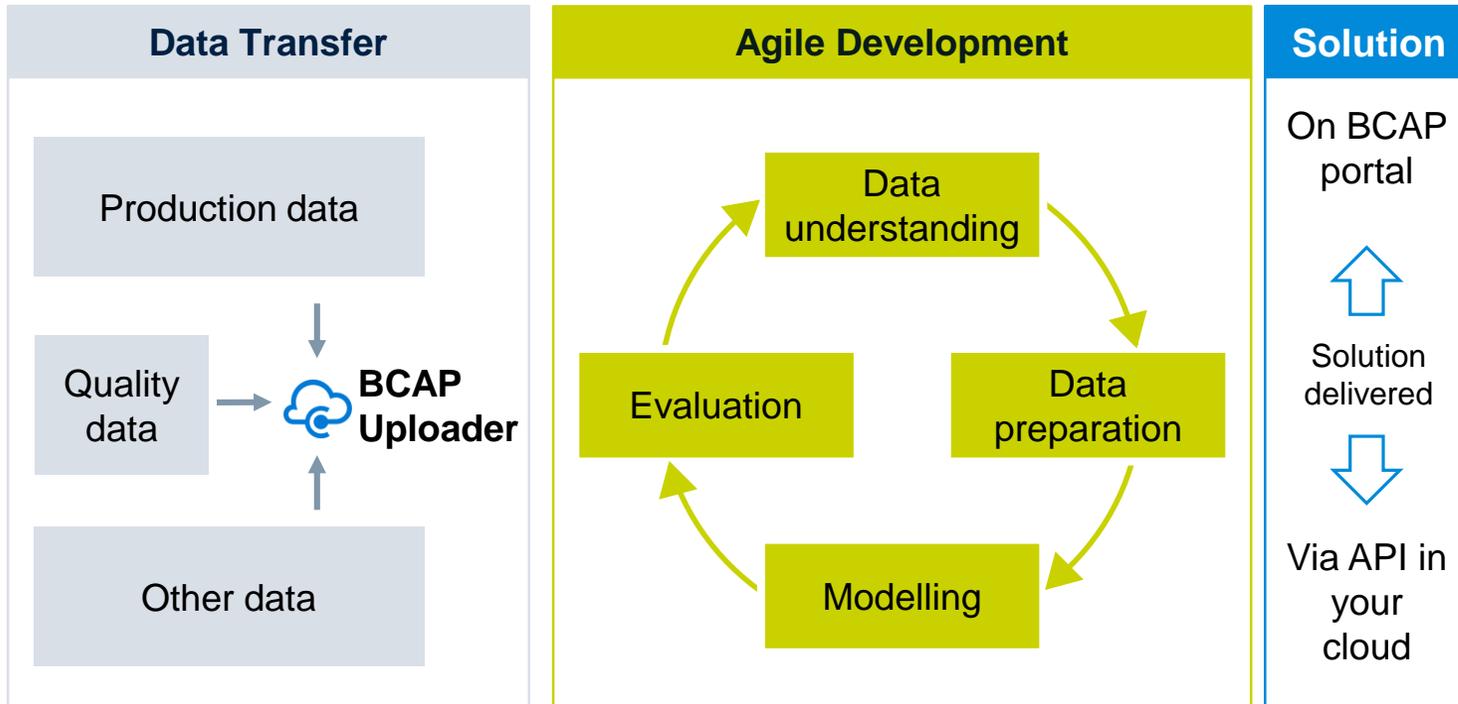


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# BCAP Platform & Solutions

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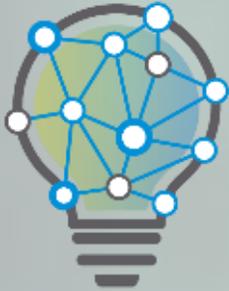
Demonstrating HOW we create real value with BCAP



## BCAP Customized Solution

*“Holistic support on your digital transformation”*

- **We guarantee value delivery.**  
Combination of BCAP platform and on-site consulting
- **We reduce time to value.** Use case identification and execution in 4 weeks\*
- **Scalability by design.** Using latest cloud technologies to avoid “POC” trap
- **Flexible integration.** Use the application on BCAP or your portal with REST-APIs



**Machine Learning Solution Shelf**



**Asset Monitoring**



**Smart Alerting**



**Cognitive Sensor**



**Plant Intelligence**



**Smart Search**



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# BCAP USE CASES

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Demonstrating HOW we create real value with BCAP®



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Feedback we receive

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**“BCAP is our access to operational excellence. Our data was easily and securely integrated in the platform with excellent support by the BCAP team. The applications are one of many steps towards digitalization.”**

— Christine Tahedl, Process Engineer,  
**Almatis GmbH**



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## Feedback we receive

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**“The quality and modernity of the plants are thus substantial increased and the complexity of the plant documentation is significantly reduced.”**

— Dr. Andreas Heidbreder, Production and Plant Manager,  
**MÜNZING Chemie GmbH**



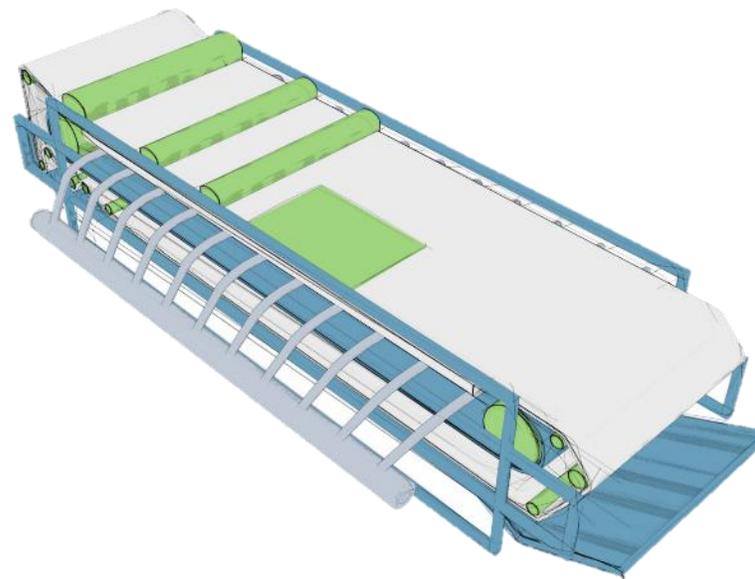
## Virtual Sensor – Process stabilization

### Customer challenge

- Moisture level is key to quality & energy consumption
- Large moisture measurement intervals (3h) lead to significant quality changes and higher energy costs

### Our solution

- Predictive moisture level in 1-min intervals with the **Virtual Sensor** without additional installations
- Process stabilization through automatic recommendations for process improvement



### Benefits



Energy



OEE  
Improvement





## Operation Mode Analysis - Increasing Batch Productivity

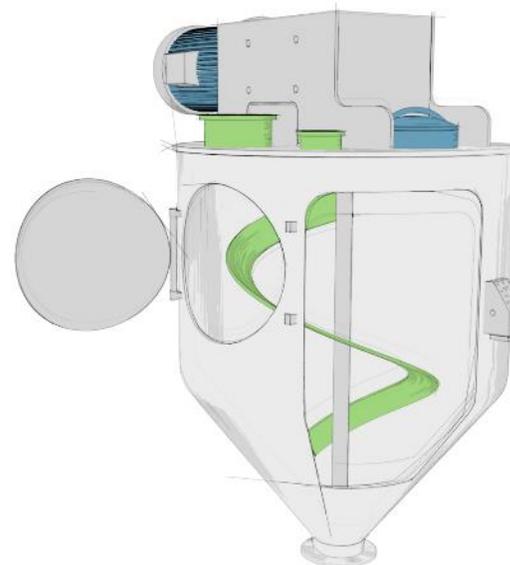
### Customer challenge

- Production time is limited to 8h per day and so are the staff resources
- Demand for increasing productivity by constant quality of the product

### Our solution

- Data driven dynamic model considering all process parameter to achieve the optimum operating point
- BCAP® gives recommendations on the mixing time, that saves time in the mixing process and made a production of one extra batch possible in the same time and quality

**MUNZING** 



### Benefits



Productivity

+ 10%



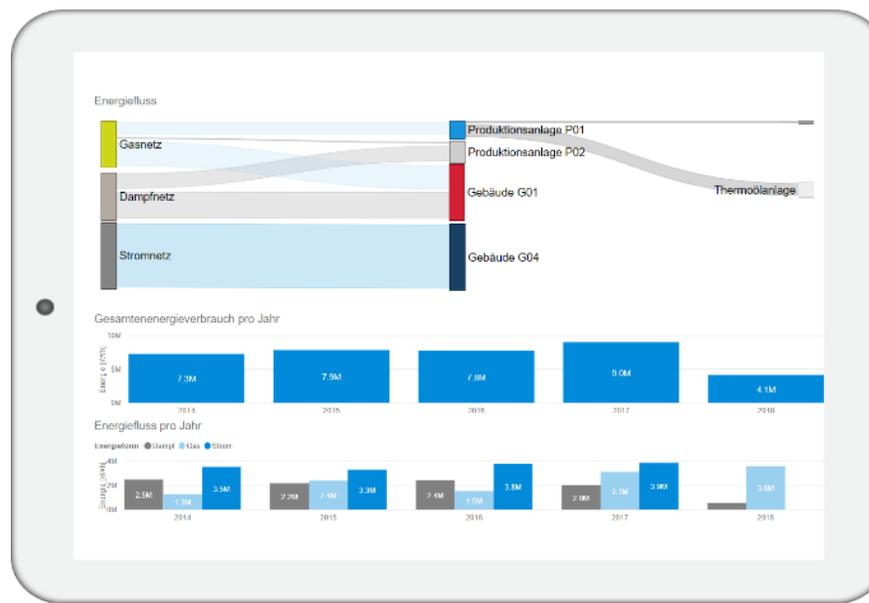
# Energy Transparency and Optimization

## Customer challenge

- Energy Management System is mostly not connected to other relevant data sources

## Our solution

- Combine data from energy counters with other data sources such as productions plans, operational hours, process parameters
- Bad-actor analysis highlight unusual energy consumption



## Benefits



### Asset Integrity

Increased asset integrity by standardized information for e.g. audits (ISO50001)





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## Downtime Prediction – Process stabilization

### Customer challenge

- High number of unplanned stops of mill during operation
- Increased wear and tear of mill motor due to high amount of starts and production delays

### Our solution

- Decision-tree based machine-learning model predicting 90% of stops 10 minutes in advance
- Best-neighbor approach to provide operator with prevention recommendations



### Benefits



**Maintenance  
Cost Reduction**

**- 30%**



**Productivity**

**+ 3%**

## Sustainable and holistic OEE improvement

### Customer challenge

- Isolated systems and department without joint data strategy
- Tremendous efforts to create production reports
- Huge OEE potential based on quality improvements
- Lack of data points to implement predictive maintenance and quality



<p><b>Increased process stability and performance</b></p> <p>BCAP® Virtual Sensor</p>	<p><b>Transparent and efficient OEE visualization</b></p> <p>BCAP® Plant Intelligence</p>	<p><b>Improved data foundation and maintainability</b></p> <p>Sensor retrofit</p>
<p><b>Improved alarm management and response time</b></p> <p>BCAP® Smart Alerting</p>	<p><b>Enhanced process data utilization</b></p> <p>BCAP® Asset Monitoring</p>	<p><b>Simple and effective bottleneck identification</b></p> <p>Value stream mapping</p>



## Sustainable and holistic OEE improvement within 8 months



### Customer challenge

- Isolated systems and department without joint data strategy
- Huge potential based on quality improvements
- Tremendous efforts to create production reports
- No improvement process introduced



<p><b>Reduced Downtime and unplanned work</b></p> <p>BCAP Smart Alerting</p>	<p><b>Enhanced process data utilization</b></p> <p>BCAP Asset Monitoring</p>	<p><b>Reduced Energy through data analysis with operation</b></p> <p>BCAP® Energy Optimizer</p>
<p><b>Digital Twin connected to BCAP</b></p> <p>BCAP® PIDGraph</p>	<p><b>Transparent and efficient OEE visualization</b></p> <p>BCAP® Plant Intelligence</p>	<p><b>Increase Productivity by Mixing Time Optimization</b></p> <p>BCAP® Improve</p>





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# Next Steps

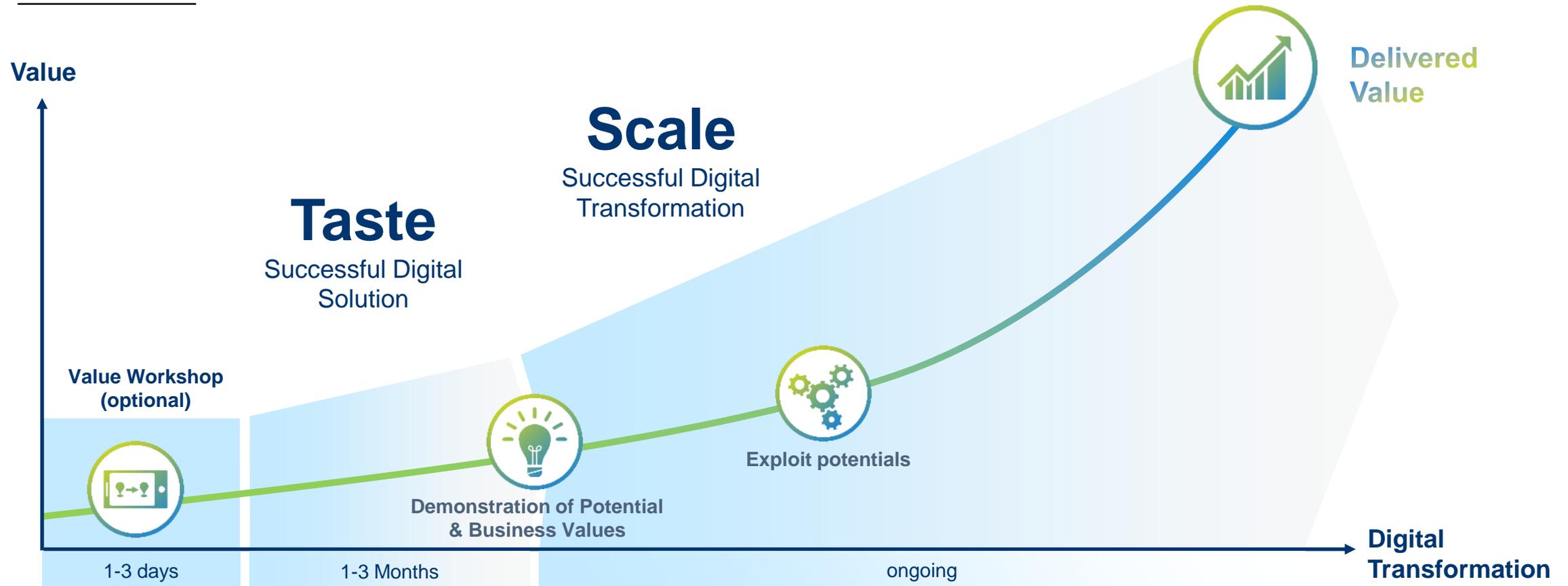
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fast | easy | safe



## Our approach

We make your digital transformation pay for itself ... fast | easy | safe

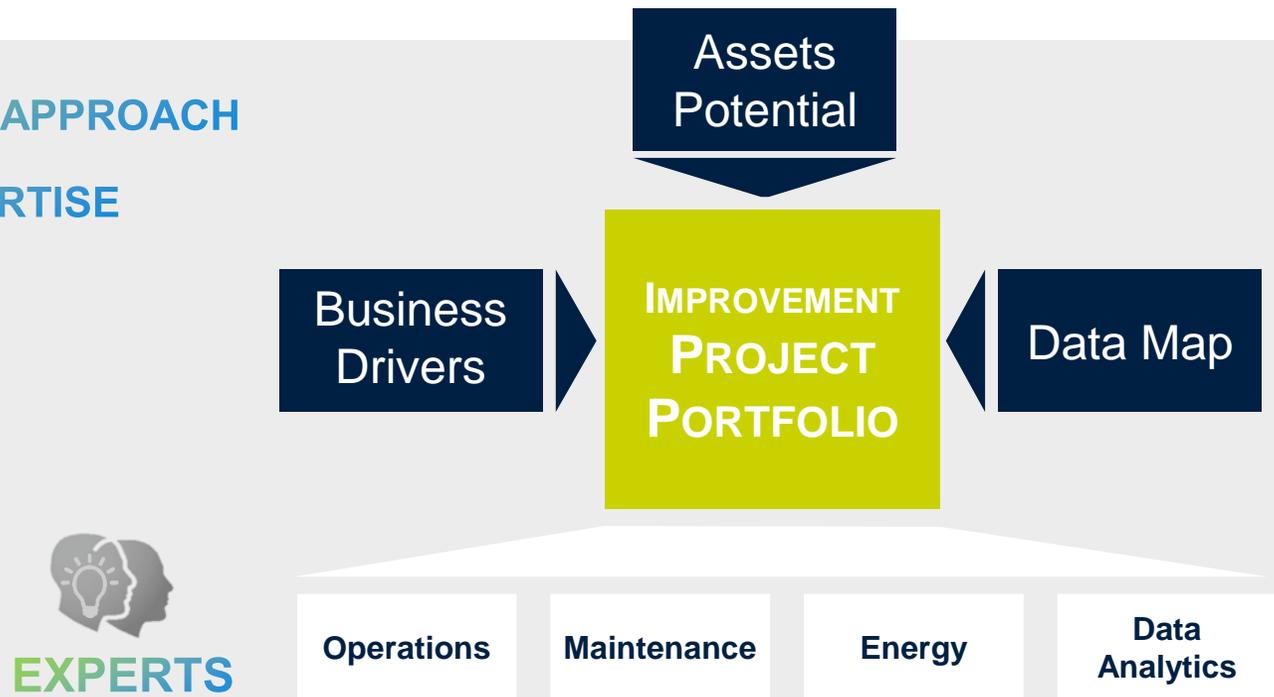




## The Value Workshop

Identifies and quantifies process improvement projects based on data science

- **STRUCTURED APPROACH**
- **DOMAIN EXPERTISE**
- **SPEED**





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# **FAST, EASY & SAFE!**

**We have the experience to start your transformation Today!**



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**WE  
MAKE  
DIGITALIZATION  
WORK!**