

Covestro's Work Management Improvement Journey

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Bio Dr.-Ing. Bodo Peters

- Electrical Engineer with a PhD on User Interfaces for Process Automation
- 22 Years with Bayer/Covestro
- Project Engineer in Germany and China
- Global Advanced Process Control Group Lead
- Now in the 11th year being Global Process Owner Routine Maintenance

Agenda



- About Covestro
- A Long Time Ago... Beginning our Journey with Prometheus
- Planning and Scheduling – Global Process Alignment and Improvement
- Lessons Learned Along the Way
- Going Mobile – Same But Different
- Looking to The Future



Covestro

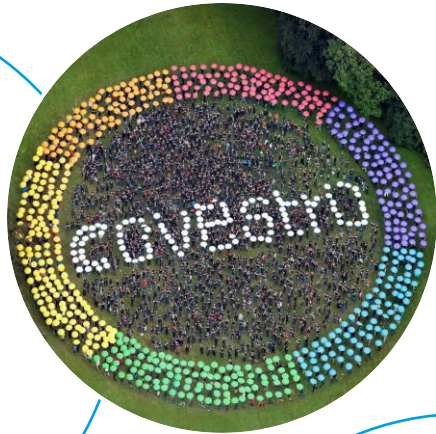
To make the world a brighter place with innovative plastics

Covestro – leading in the world of plastics



Strong

- €18.0 bn in sales
- 18,000 employees¹



Useful

- Plastics, pre-products and solutions
- For many industries



Global

- 50 production sites globally
- Close to customers and partners

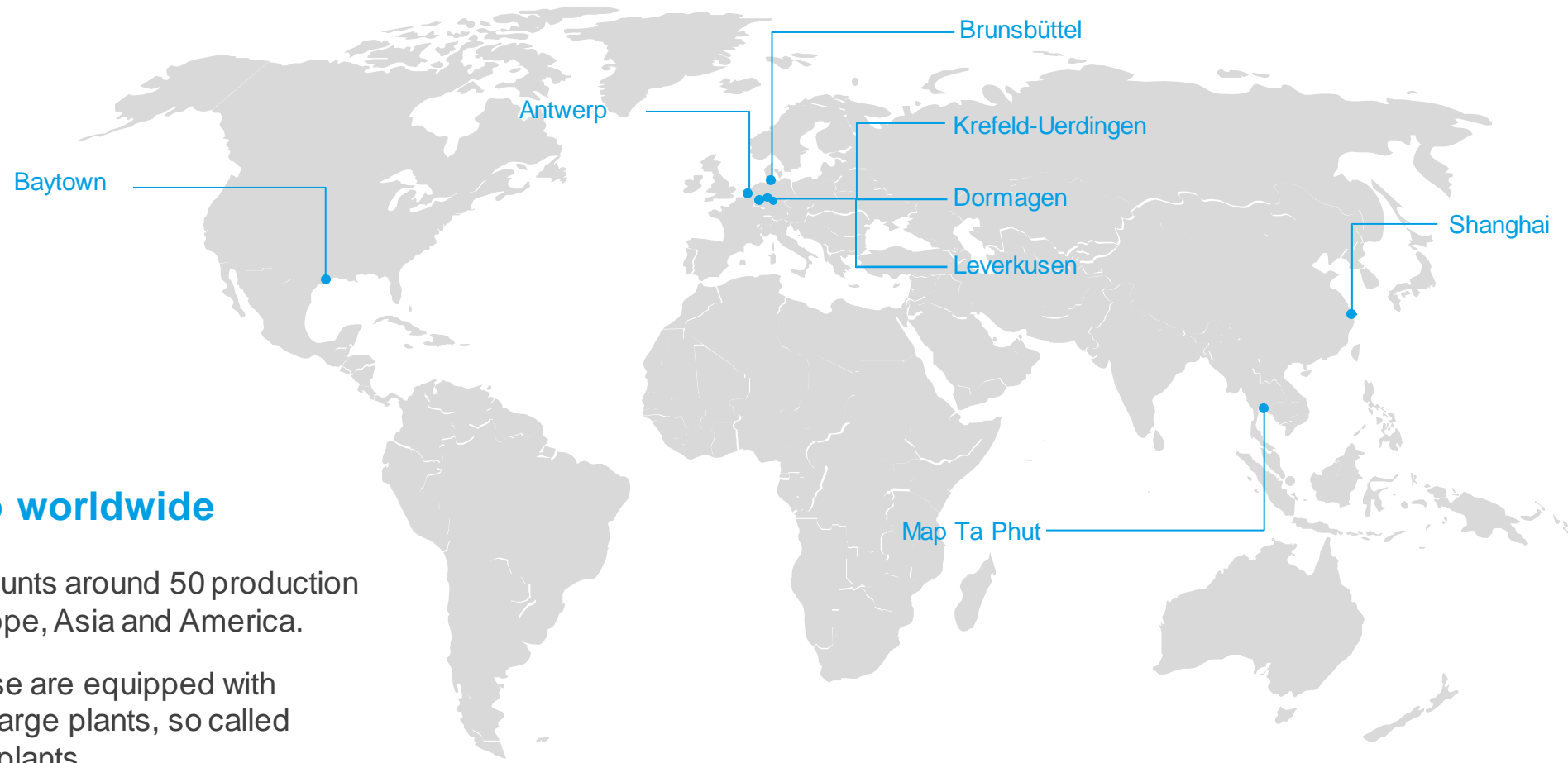


Innovative

- 1,500 employees in research and development
- 80 years of ideas and inventions



Our presence



50

production sites worldwide

8

sites with world-scale production plants

13

R&D sites

Covestro worldwide

Covestro counts around 50 production sites in Europe, Asia and America.

Eight of these are equipped with particularly large plants, so called world-scale plants.



Forward-looking statements

This presentation may contain forward-looking statements based on current assumptions and forecasts made by Covestro AG.

Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Covestro's public reports, which are available on the Covestro website at www.covestro.com.

The company assumes no liability whatsoever to update these forward-looking statements or to adjust them to future events or developments.



A Long Time Ago... Beginning our Journey with Prometheus

Evaluation in 2012 – Results:



Summary of Evaluation

Status: 17-Jan-2013	Prometheus	MRS	CM34	MS Project (bi-direktional)	MS Project (Stand-alone)
Scheduling Tool Support for Upcoming SAP enhancements	+	+	-	+	0
System Requirements (Basics)	++	0	-	-	--
Usability	++	0	-	-	-
Graphical Work Order Scheduling - Gantt Chart Layout and Display	++	0	--	+	+
Graphical Work Order Scheduling - Functionality	++	0	--	+	0
Miscellaneous Requirements and Features (KPIs, etc.)	+	0	-	+	+
SUM / Total	++	0	-	0	0

For each category several detail criteria are evaluated. Range of answers are from ++ (5Points) down to --(1Point).



Planning and Scheduling – Global Process Alignment and Improvement



Roll Out 2013-14; Results 2015

2013	2014
Q2 / 2013 Jun '13	Routine Maintenance with Prometheus (GWOS & Navigator - 2015):
Kickoff KW26	Sites/Plants trained to use Prometheus (Status June 2015):
	<ul style="list-style-type: none">■ Krefeld-Uerdingen (Germany – 2 plants)■ Dormagen, Leverkusen (Germany – plant each site)■ Tarragona (Spain)■ Brunsbüttel (Germany – 2 plants)■ Map ta Phut (Thailand)■ Caojing (China)■ New Martinsville, South Charleston (US – West Virginia)■ Baytown (US – Texas)■ Next: Antwerp (Belgium)
	<ul style="list-style-type: none">■ BMS has Change licenses for parts:<ul style="list-style-type: none">■ GWOS change■ Order to Task List■ Prometheus Printing Man■ Not fully utilized: Material■ The Navigator is available for:<ul style="list-style-type: none">■ Everybody can use the na■ Public to all is also the:<ul style="list-style-type: none">■ GWOS view in SAP



Successes and Lessons Learned Along the Way

Frame Conditions

- **Site / Plant Setup must fit to the planning & scheduling:**
 - Planner needs to be recruited from workshop staff (part time up to team of 2-3 people with different background, E&I, Piping, Rotating)
 - Scheduler preferred from production/operation, but can also be a former operator now working for the workshop
- **Production and Technical Management must change the organization if it does not fit the structure needed:**
 - In the best case, there would be a site standard including synergies and site wide resource leveling.
 - A known challenge for changing behavior and workflows is the current maintenance plans and contractor management structure.



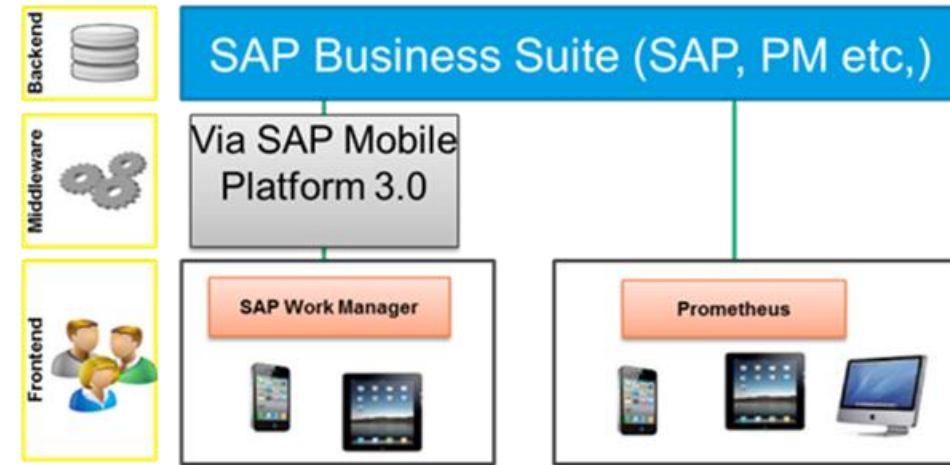
Covestro's Streamlining till 2020

- All major sites (8 large and 5 mid-size) are using P&S:
 - Site wide structure of notification, planning steps and scheduling is established with Navigator screens, managed by local Key Users.
- **Progress Tracking and Hours Posting:**
 - The creation of operation line 99 (we start scheduling at operation 100) was introduced to give feedback for scheduled jobs that have been postponed
 - Some improvements are ongoing, including the change from Notification based maintenance plans to Work Order based plans



Going Mobile – Same But Different

Mobile Maintenance 2016



- Is there a best practice and tool?
 - From multiple conferences and fairs, the feedback was always the same - there is no blueprint, each company has to create its structure through their own experiences
- Many solutions are in the market, we chose two to pilot:
 - Prometheus for solution without middleware
 - SAP Work Manager with the Middleware SAP Mobile Platform 3.0
- Guess who made it?
 - Prometheus was the chosen solution due to its easy IT configuration and the high flexibility of the user interface
 - After the pilot, the decision was made to implement the Mobile solution similarly to the P&S solution

Rollout start in 2017

- Rollout started using Win 8.1 tablets
- Hardware ordering and configuration causes a lot of headaches and delays
- Same small team as P&S started step by step
- Challenge to get maintenance plans to change from notification based to work order based



Project Closed 2021

- Due to HW problems, a personnel reorganization, and the Corona Crisis, the project was not closed out until 2021
- 5 of 8 major sites using it
- Lesson Learned - do not change hardware, software and the process all in one step!
- The most successful use case was where there were no previous maintenance plans, allowing the group to build the right solution from scratch using only the mobile solution!





Looking to the Future



From 2023 on

- Upgrade the Mobile solution and use explosion proof Android smart phone or tablets!
- Challenge: Limited IT resources to other major projects
- We plant to move to STO planner and have leveraged benefits of a common software platform.

Thank you

Questions?