Achieving Uniform Global Production Efficiency and Quality with OSIsoft’s PI System

Presented by Jan de Wilde, Allnex
Florian Spribille, SpiraTec
• Allnex and SpiraTec – who we are
• Initial situation and targets at Allnex
• System solution – Infrastructure, components, applications
• Results and benefits
• Future forecast and conclusion
ALLNEX – OUR BUSINESS

- $1.5 billion Company with main focus on Resins
- A global leader in the $30 billion coating resins industry
- Strong position in its four Product Lines:
  - Liquid Resins & Additives
  - Radiation curable resins
  - Powder coating resins
  - Cross linkers
- Multiple end user segments:
  - Automotive,
  - Industrial,
  - Packaging coating and inks,
  - Protective,
  - Consumer electronics & industrial plastics
  - Specialty architectural.
ALLNEX – OUR GLOBAL BUSINESS

- 16 manufacturing facilities,
  - 13 research and technology centers,
  - 2 joint ventures (Korea & Japan)
- www.allnex.com
## ALLNEX – OUR TECHNOLOGIES

<table>
<thead>
<tr>
<th>Key Technologies</th>
<th>Liquid Resins &amp; Additives</th>
<th>Radiation Curable Resins</th>
<th>Powder Coating Resins</th>
<th>Crosslinkers</th>
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</thead>
<tbody>
<tr>
<td>Waterborne Resins</td>
<td>PUD, Alkyds, Epoxies, Acrylics, CED Resins</td>
<td>Oligomers</td>
<td>Polyester Resins</td>
<td>Aminos Crosslinkers Formaldehyde-Free Crosslinkers Phenolic Coating Resins Technical Phenolics</td>
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<tr>
<td>Solventborne Resins</td>
<td>Alkyds, Epoxies, Acrylics, Coating Additives</td>
<td>Urethane Specialties</td>
<td>Hybrid, Standard Durable, Super Durable UV Powder Resins Additives &amp; Masterbatches</td>
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<td>Radiation Curable Resins</td>
<td>Urethane Acrylates, Epoxy Acrylates, Polyester Acrylates, Amino Acrylates Monomers UVEKOL® Glass Lamination Vancryl Acrylics</td>
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<td>Powder Coating Resins</td>
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<td>Architectural Extrusions</td>
<td>Industrial Wood</td>
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<td>Crosslinkers</td>
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<td>Domestic Appliances</td>
<td>Metal Packaging</td>
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<td>General Metal</td>
<td>Automotive</td>
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<td>Tires &amp; Rubber Products</td>
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</table>

### Key Segment
- Automotive
- Protective & General Metal
- Architectural
- Plastic
- Inks & Overprint Varnishes
- Industrial Wood
- Plastic
- Eletronics
- Architectural Extrusions
- Domestic Appliances
- General Metal
- Industrial Wood
- Metal Packaging
- Automotive
- Tires & Rubber Products

### Example end user applications
- Industry's broadest resins portfolio
- polyester resins
- Hybrid, Standard Durable, Super Durable UV Powder Resins Additives & Masterbatches
- Aminos Crosslinkers Formaldehyde-Free Crosslinkers Phenolic Coating Resins Technical Phenolics
Company overview SpiraTec AG

- Headquarters: Speyer – Germany
- Branches: Germany, Austria, USA
- Foundation: Nov. 2007
- Board of management: Andreas Schadt - CEO, Frank Heines – CEO
- Employees: Extension to more than 180 employees in less than 8 years
- Company claim: Industrial Engineering and Solutions for manufacturing excellence
- Target markets: Europe, USA, Arabic Gulf States
- Customers: TOP 100 companies of the process and discrete industry and international plant construction
- Systems: Production management and process control systems Implementation of systems of leading suppliers from Europe, USA and Asia. Generation of integrated solutions for notable customers worldwide
- Our services: IT and automation consulting, engineering, system integration and services for operating production plants.
Overview of business segments

SpiraTec AG

Industrial Engineering
- Plant and Process Engineering
- Automation and IT Services for EPCM

Industrial Solutions
- Industrial IT Solutions
- Industrial Automation Solutions
SpiraTec services for OSIsoft

• Long-term partnership with OSIsoft
• Large team of engineers with strong background in PI System design and modules
• Concept / system design
• System installation and configuration incl. implementation of the (virtual) IT infrastructure
• Integration of shop-floor systems (DCS, PLC, PU)
• Integration of ERP systems (i.e. SAP) via Enterprise Service Bus (i.e. SAP MII)
• Horizontal integration
• Application design und development (PI AF, PI SDK, PI OLEDB,...)
• 1st und 2nd level support (Serviceline program, ticket system, FAQ, etc.)
• Migration of OSIsoft- and third-party systems
• Training / Workshops
PI System Infrastructure

Portfolio SpiraTec
Starting point at Allnex

- Diverse DCS and historian systems implemented in the enterprise
- Centralized data hubs for sites and global approach missing
- Standardization in quality and efficiency initiatives required
- No adequate solution for horizontal and vertical integration of IT systems
Targets

Increased standardization and communication

Uniform real-time data access and usability

Improved KPIs for quality and asset effectiveness

Reinforced market position

All About Resins
Solution Part 1 – System Design

Microsoft SQL Server / MS Reporting and Analysis Services

PI Clients
PI ProcessBook, PI DataLink, PI Batch

PI Server / Asset Framework (AF) / Event Frames (EF) / Asset Analytics

Data input - Third-party systems and operators
Dashboards OEE/KPI

Trending / Process visualization
Excel reports
System configuration Data administration

Calculations

Data consolidation and archiving

PI OPC DA Interface

Shop-Floor

Plant area 1
Plant area 2
Plant area 3
Plant area 4

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Plant area 1
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Plant area 4
System Design – Components and interfaces

- Triple server to ensure system performance and availability (PI Server, Asset Framework Server, terminal server)

- Virtualized environment - Easy and safe system administration, user access and data backup

- PI OPC DA Interface for connection of diverse DCS systems

- Customized communication tools to enable automated data migration and transfer for system revision or enlargement

- Standardized components for hard- and software assure system comparability and long-term reliability for the enterprise
Solution Part 2 – Applications

- Asset effectiveness
- Batch management
- Process supervision
- Alarm management
- Energy management
- Preventive maintenance
- Management dashboards
“PI Batch enables effective Golden Batch analysis for production and quality management”
“Sub-Batches and cycle times are selected in pre-developed drop-down menus and tracked in periodic batch reports as required by production engineers”
“Existing PI System dashboards are available throughout the enterprise enabling data drill-down and comparison between sites and production processes”
“Diverse applications for energy management and tracking of energy resource consumption enable statistical process control”
“PI System Weekly Visual Report in PI DataLink for automated overview and effective decision-making”
“Horizontal integration of OSIsoft PI System with Allnex quality (LIMS) systems using existing interface technology improves integration of diverse information in one data hub”
“Visual Graphics in PI ProcessBook using real-time PI Server data enable better process monitoring and faster troubleshooting for engineers and supervisors”
“The PI Server preventive maintenance tracking in PI DataLink using run-time evaluation for numerous production assets”
Current status at Allnex

- PI System usage at numerous global sites for production management and quality analysis
- Single-site approach for PI System infrastructure – decentralized servers
- PI OPC DA Interface for connection of diverse DCS systems
- 95% Batch Processes – strong usage of PI Batch and PI ProcessBook
- Alarm handling and control enabled by PI Notifications
- Numerous applications for asset effectiveness, batch analysis and process supervision
Benefits of the System

- **Global data access for all users**
- **Centralized data platform**
- **Horizontal integration between third-party systems, production plants and sites**
- **Applications for operational initiatives improving business-wide understanding and standardization**
- **Enabling of future vertical integration to ERP and MES systems**
- **Simplified batch analysis for quality improvement and batch comparison**
Future tasks

- Migration strategy for batch analysis towards Asset Framework, Event Frames and PI Coresight – long-term support for PI Batch still required
- Centralized infrastructure for each continent
- Vertical integration with ERP and MES
- Detailed applications and further standardization
A future model for global infrastructure

Europe

USA

Asia

PI Server
AF Server
Terminal -server

PI Server
AF Server
Terminal -server

PI Server
AF Server
Terminal -server

PI OPC DA Interface
PI OPC DA Interface
PI OPC DA Interface

DCS Belgium

PI OPC DA Interface
PI OPC DA Interface
PI OPC DA Interface

DCS Michigan

PI OPC DA Interface
PI OPC DA Interface
PI OPC DA Interface

DCS Georgia

PI OPC DA Interface
PI OPC DA Interface
PI OPC DA Interface

DCS Japan
Performance management solution for global production efficiency

- Based on common, international guidelines – ISA 95, ISO 22400
- Standardized templates for AF elements, event frames and visualization dashboards
- Element structure, attributes and formula in AF and PI Analytics
- Time models and report enabling via EF and Notifications
- Reports and Dashboards via PI Coresight, PI ProcessBook and PI DataLink
Energy management solution following ISO 50001

- Following the international standard for energy management programs - ISO 50001
- Numerous interfaces for data input from IT systems, mobile sensors, data banks, etc.
- Data structuring and calculation using templates in AF and Asset Analytics
- Pre-developed event frames for energy use cases including alarms created by PI Notifications
- Visualization and reports via PI Coresight, PI ProcessBook, PI DataLink and PI WebParts
Summary

“OSIsoft PI enables us to achieve global operational excellence by provision of real-time and batch-related data, when, where and by whom required. Thereby it contributes to our goal to be the global leading Coating Resins Company”

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<tr>
<th>BUSINESS CHALLENGES</th>
<th>SOLUTION</th>
<th>RESULTS AND BENEFITS</th>
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<tr>
<td>A. Operations management initiatives for manufacturing excellence, energy management, etc.</td>
<td>A. Global, standardized system design with horizontal and vertical integrated IT infrastructure</td>
<td>• Centralized data platform with global access</td>
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<tr>
<td>B. Global communication and data management required</td>
<td>B. Production efficiency by real-time process control and comparison of worldwide plants and systems</td>
<td>• Improvement of quality numbers and resource consumption</td>
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<tr>
<td>C. Major targets to increase asset and resource efficiency</td>
<td>C. Sophisticated applications improving daily production planning and performance</td>
<td>• International standardization of process supervision increasing global communication</td>
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<td></td>
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<td>• Tangible increase in employee knowledge and effectiveness</td>
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Questions

Please wait for the **microphone** before asking your questions

State your name & company

Please don’t forget to...

Complete the Online Survey for this session

http://eventmobi.com/emeauc15
Thank You

Danke
Merci
Gracias
Obrigado
Спасибо
ありがとう
감사합니다

Allnex and SpiraTec thank you for your attention