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

Presented by   Jan de Wilde, Allnex
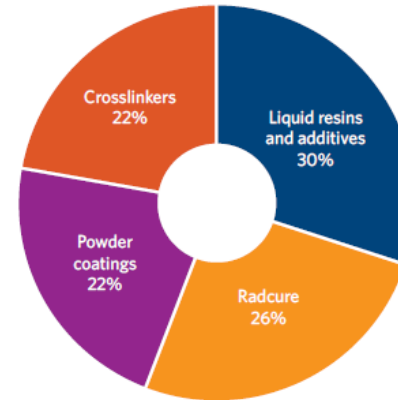
Florian Spribille, SpiraTec

- Allnex and SpiraTec – who we are
- Initial situation and targets at Allnex
- System solution – Infrastructure, components, applications
- Results and benefits
- Future forecast and conclusion

Agenda

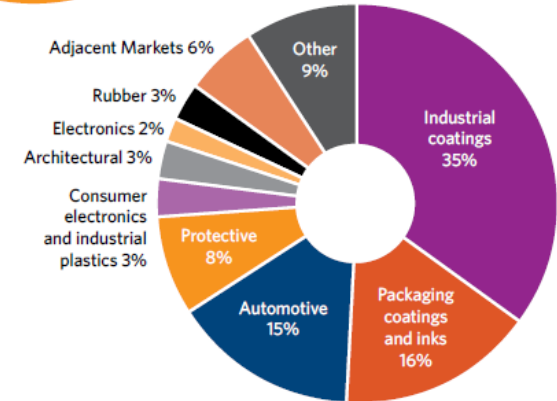# ALLNEX – OUR BUSINESS

- $ 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

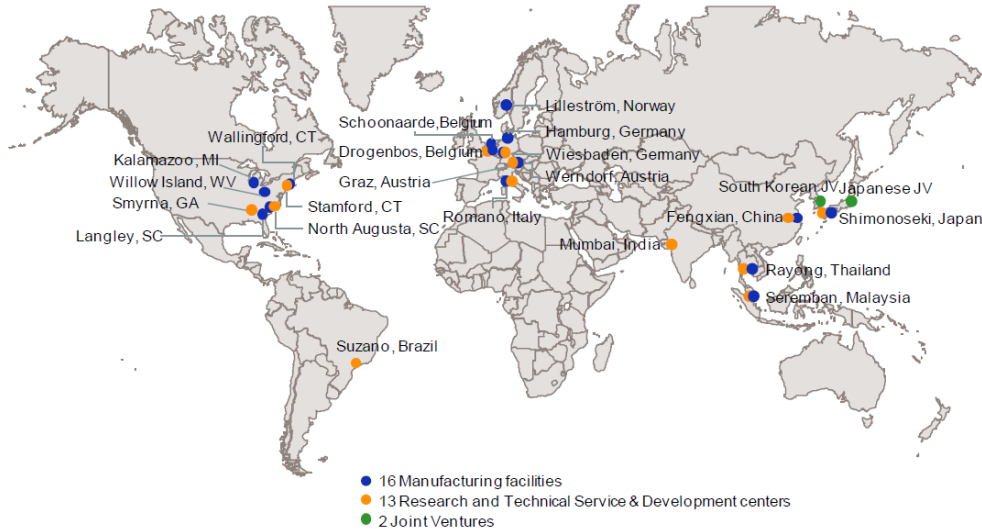**spira tec**

2012 SALES BY SEGMENT

Crosslinkers 22%
Liquid resins and additives 30%
Powder coatings 22%
Radcure 26%

2012 SALES BY END-MARKET

Adjacent Markets 6%
Rubber 3%
Electronics 2%
Architectural 3%
Consumer electronics and industrial plastics 3%
Protective 8%
Automotive 15%
Other 9%
Industrial coatings 35%
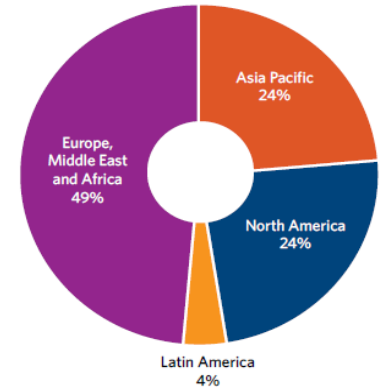Packaging coatings and inks 16%

ALLNEX – OUR GLOBAL BUSINESS

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

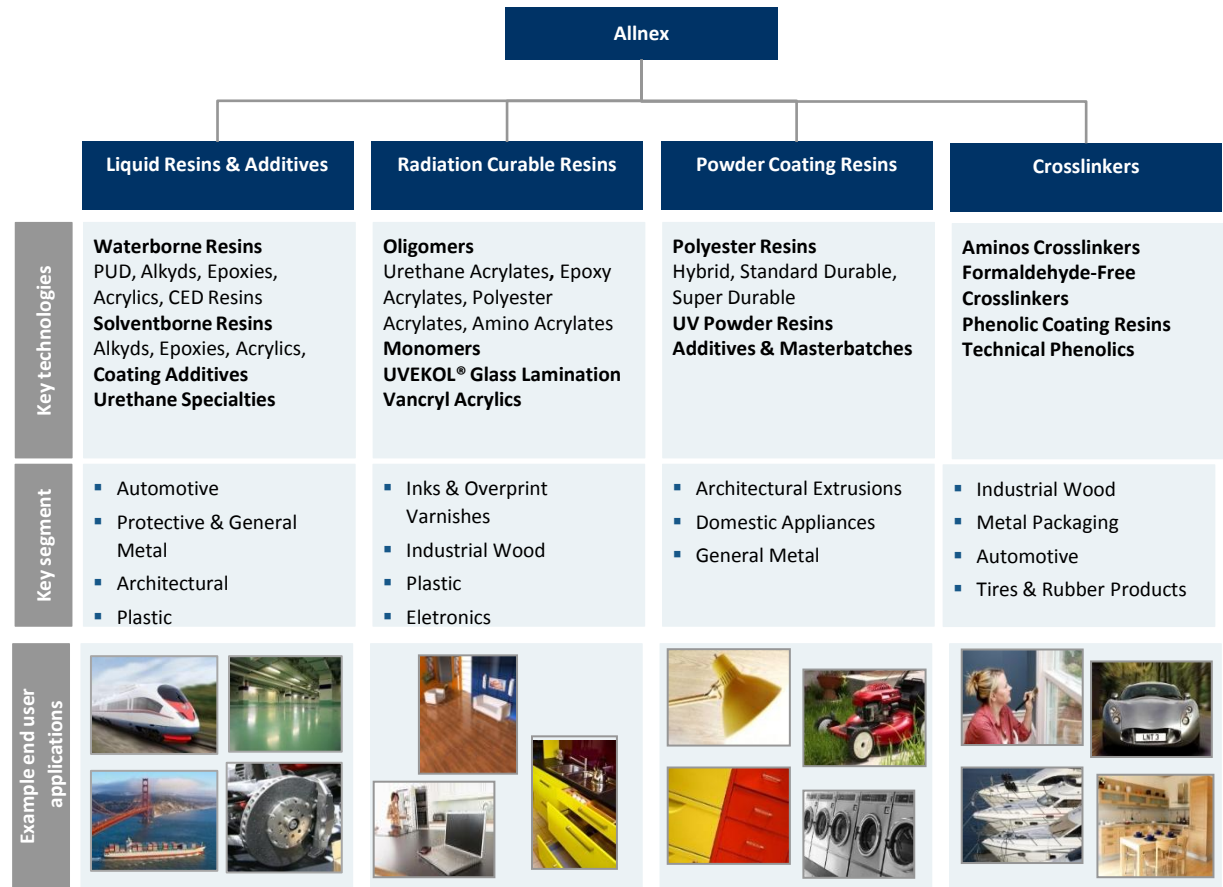**Production sites and laboratories / technology centers**

- Lilleström, Norway
- Schoonaarde, Belgium
- Hamburg, Germany
- Wallingford, CT
- Drogenbos, Belgium
- Wiesbaden, Germany
- Kalamazoo, MI
- Graz, Austria
- Werndorf, Austria
- Willow Island, WV
- South Korean JV Japanese JV
- Smyrna, GA
- Stamford, CT
- Romano, Italy
- Fengxian, China
- Shimonoseki, Japan
- Langley, SC
- North Augusta, SC
- Mumbai, India
- Rayong, Thailand
- Seremban, Malaysia
- Suzano, Brazil

- 16 Manufacturing facilities
- 13 Research and Technical Service & Development centers
- 2 Joint Ventures

2012 SALES BY GEOGRAPHY

- Asia Pacific 24%
- Europe, Middle East and Africa 49%
- North America 24%
- Latin America 4%

2 000 EMPLOYEES DEDICATED TO COATING RESINS

ALLNEX – OUR TECHNOLOGIES

Allnex

Liquid Resins & Additives	Radiation Curable Resins	Powder Coating Resins	Crosslinkers
Key technologies			
Waterborne Resins PUD, Alkyds, Epoxies, Acrylics, CED Resins **Solventborne Resins** Alkyds, Epoxies, Acrylics, **Coating Additives** **Urethane Specialties**	**Oligomers** Urethane Acrylates**,** Epoxy Acrylates, Polyester Acrylates, Amino Acrylates **Monomers** **UVEKOL® Glass Lamination** **Vancryl Acrylics**	**Polyester Resins** Hybrid, Standard Durable, Super Durable **UV Powder Resins** **Additives & Masterbatches**	**Aminos Crosslinkers** **Formaldehyde-Free Crosslinkers** **Phenolic Coating Resins** **Technical Phenolics**
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

OSIsoft.

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.

Allnex

spira tec

Overview of business segments

SpiraTec AG

Industrial Engineering		Industrial Solutions	
Plant and Process Engineering	Automation and IT Services for EPCM	Industrial IT Solutions	Industrial Automation Solutions
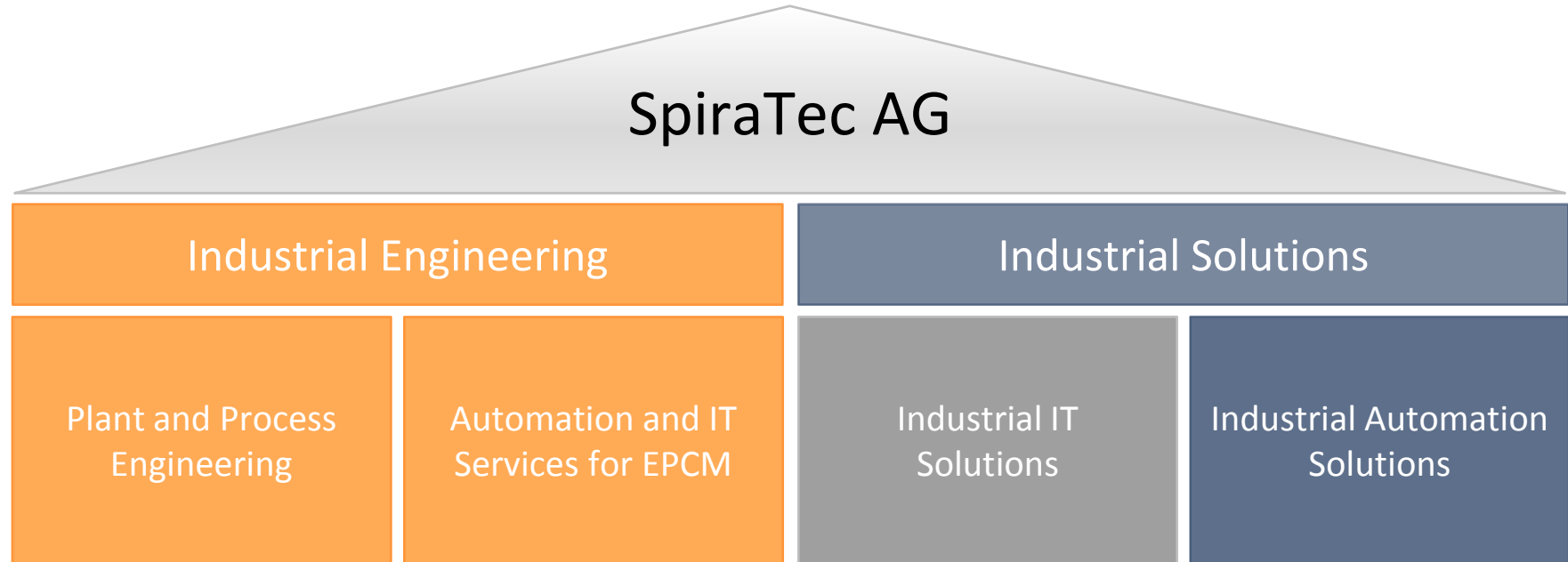
SpiraTec services for OSIsoft

- 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
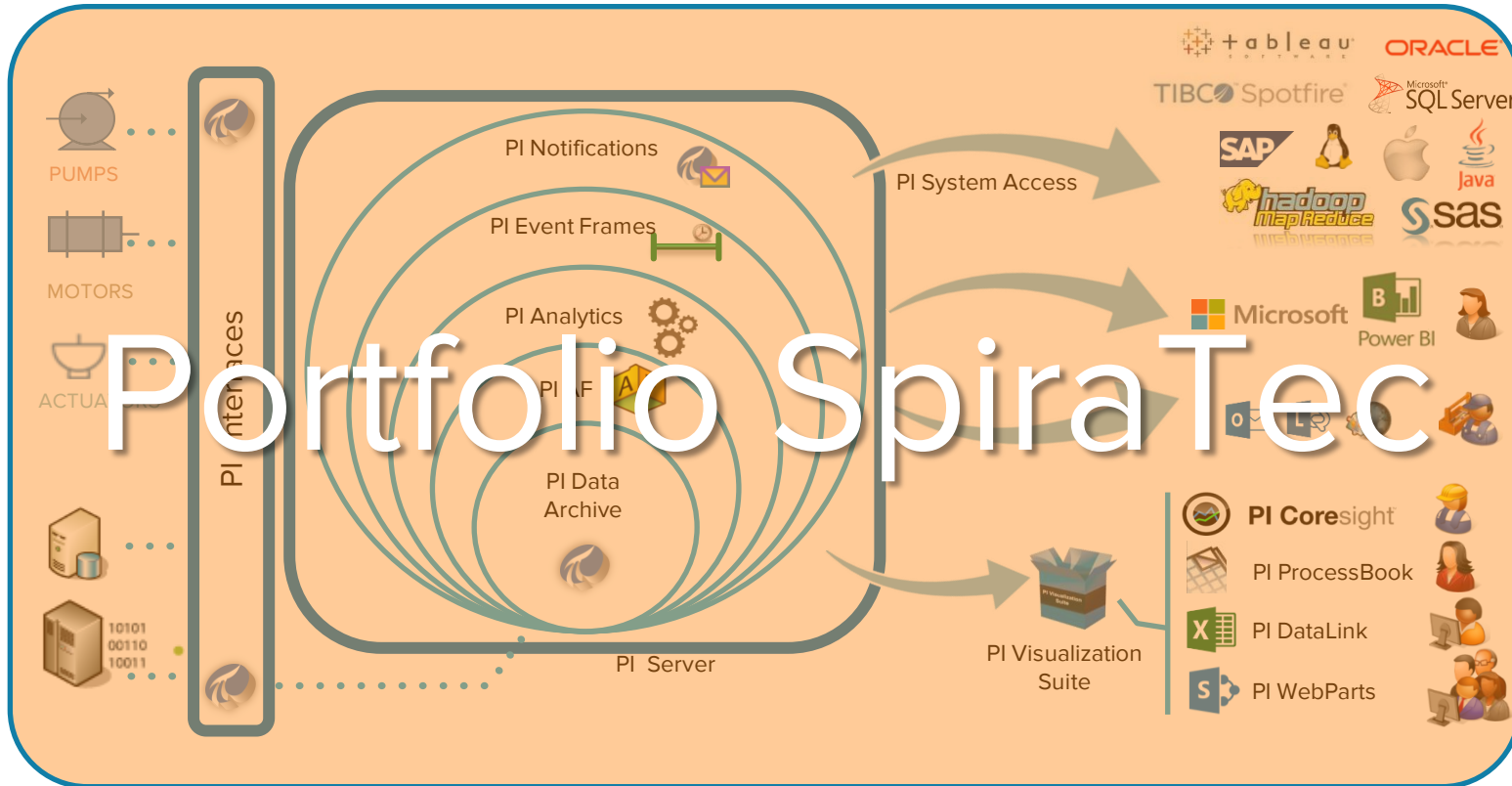
Starting point at Allnex

- 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
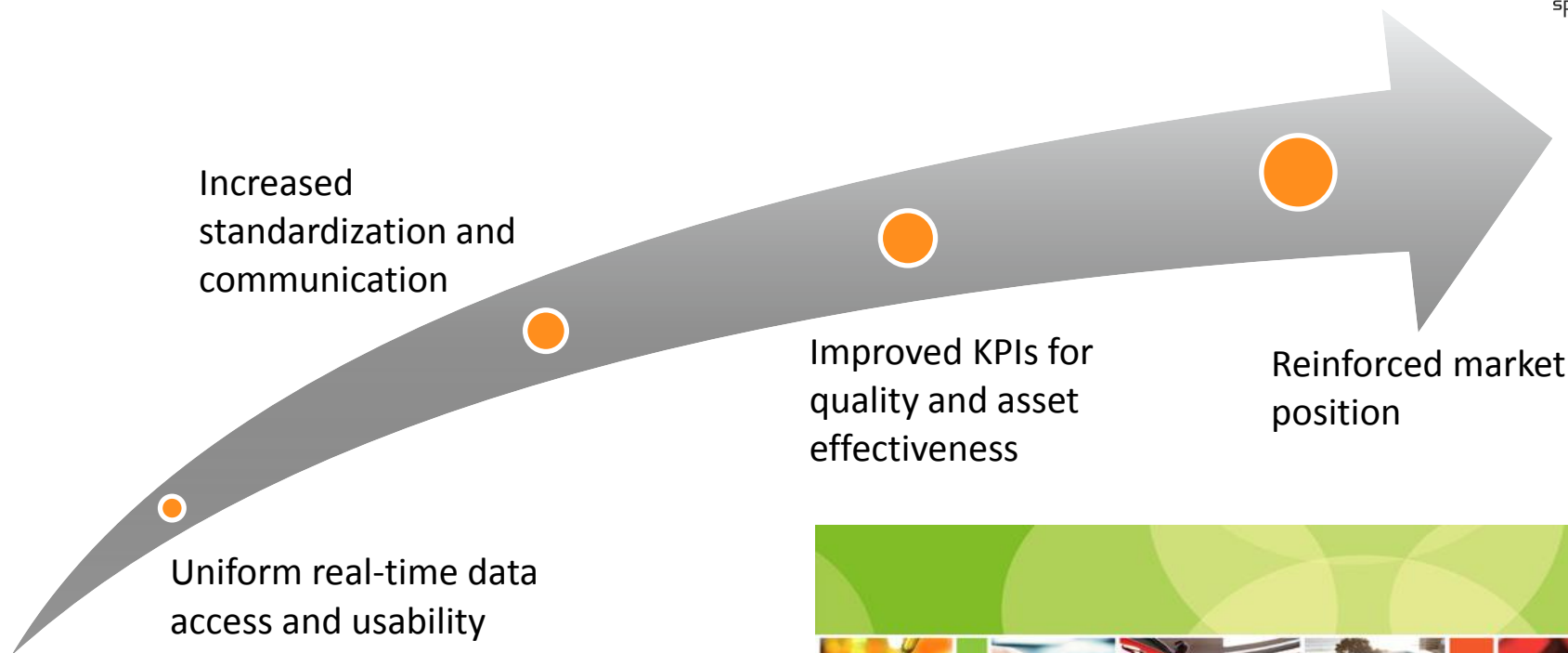
All About Resins

Solution Part 1 – System Design

Microsoft SQL Server / MS Reporting and Analysis Services

Data input - Third-party systems and operators

Dashboards OEE/KPI

**PI Clients
PI ProcessBook,
PI DataLink,
PI Batch**

Trending / Process visualization

Excel reports

System configuration Data administration

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

Data consolidation and archiving

Calculations

Shop-Floor

PI OPC DA Interface

PI OPC DA Interface

Plant area 1

Plant area 2

Plant area 3

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"
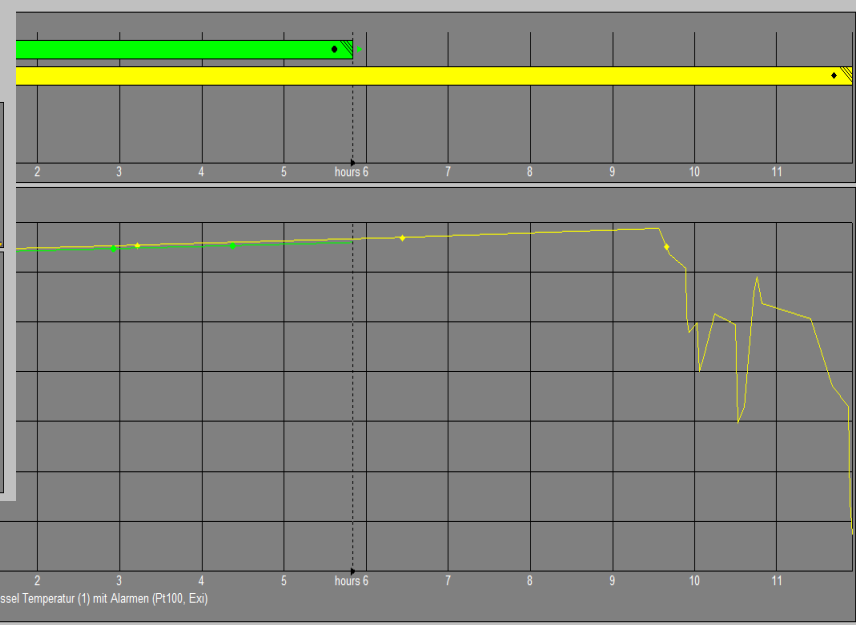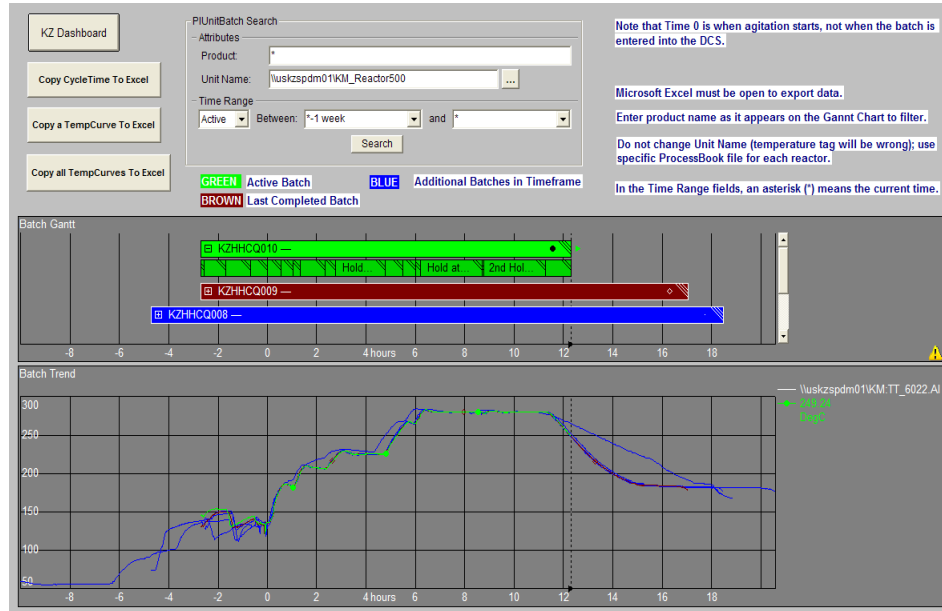
"Sub-Batches and cycle times are selected in pre-developed drop-down menues and tracked in periodic batch reports as required by production engineers"

"Existing PI System dashboards are available throughout the enterprise enabling data drill-down and comparison between sites and production processes"
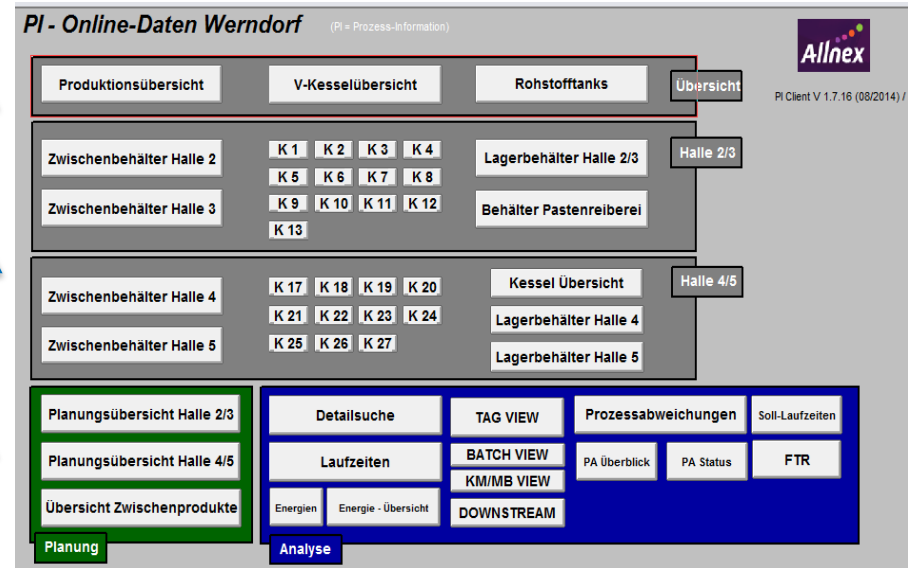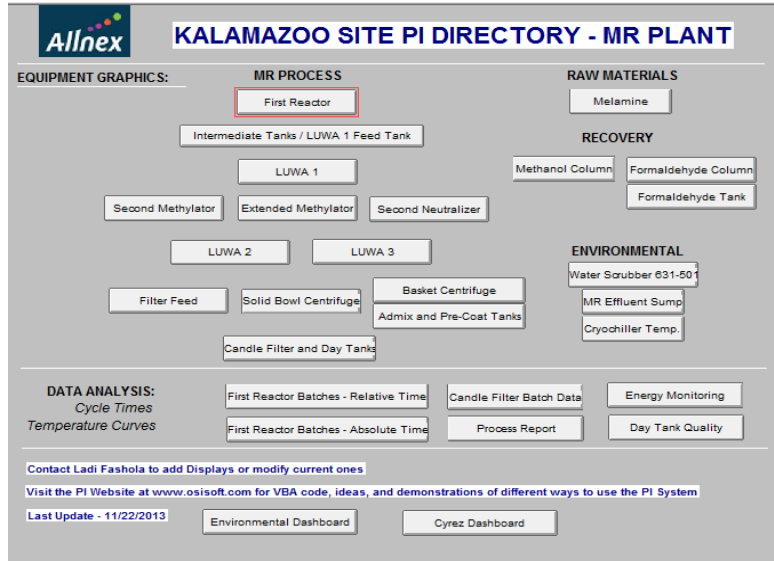
"Diverse applications for energy management and tracking of energy resource consumption enable statistical process control"

This represents the area in the control chart where the process is running inefficient. Here the operator should address to make a change.

This represents the area with optimal setting in which the process should run.

This represents the area in the control chart where the process is running efficient.

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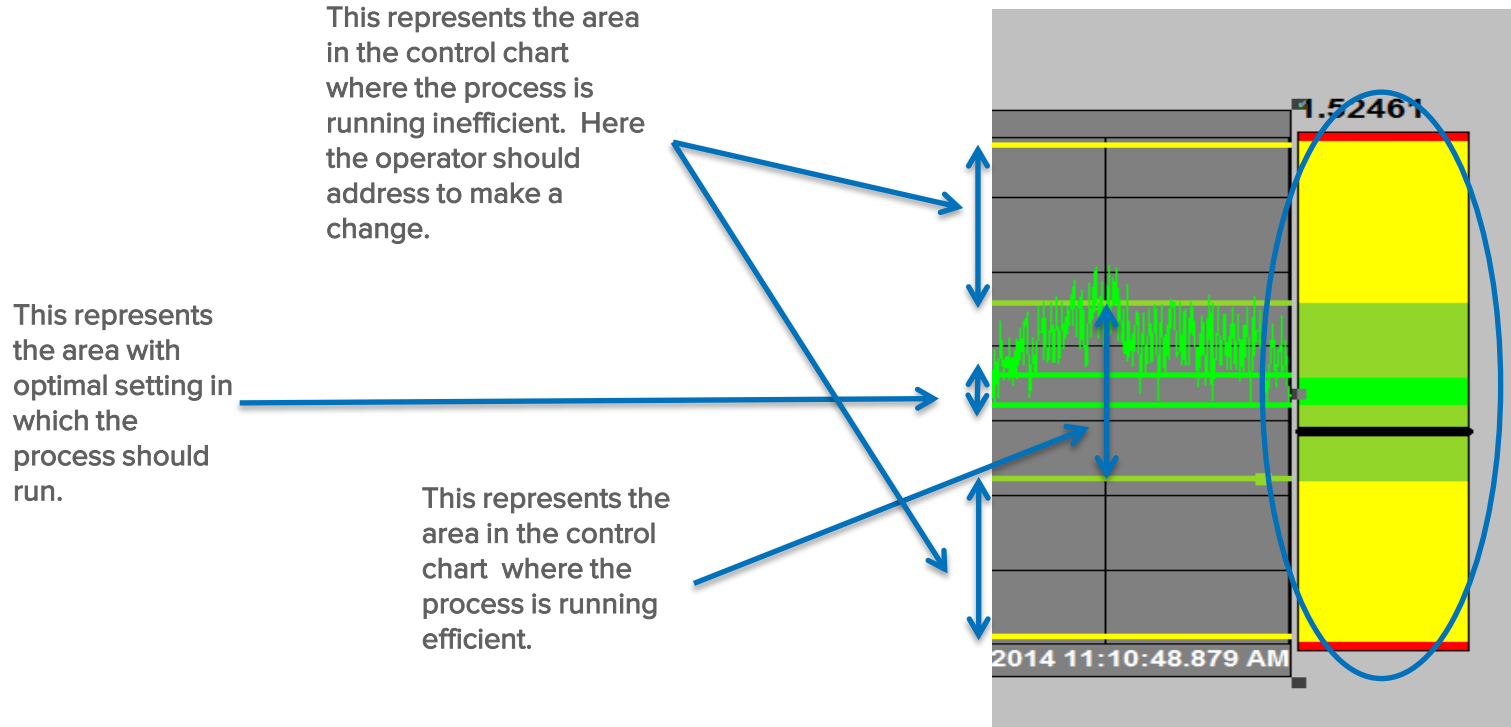
"PI System Weekly Visual Report in PI DataLink for automated overview and effective decision-making"

"Horizontal integration of OSIsoft PI System with Allnex quality (LIMS) systems using existing interface technology improves integration of diverse information in one data hub"
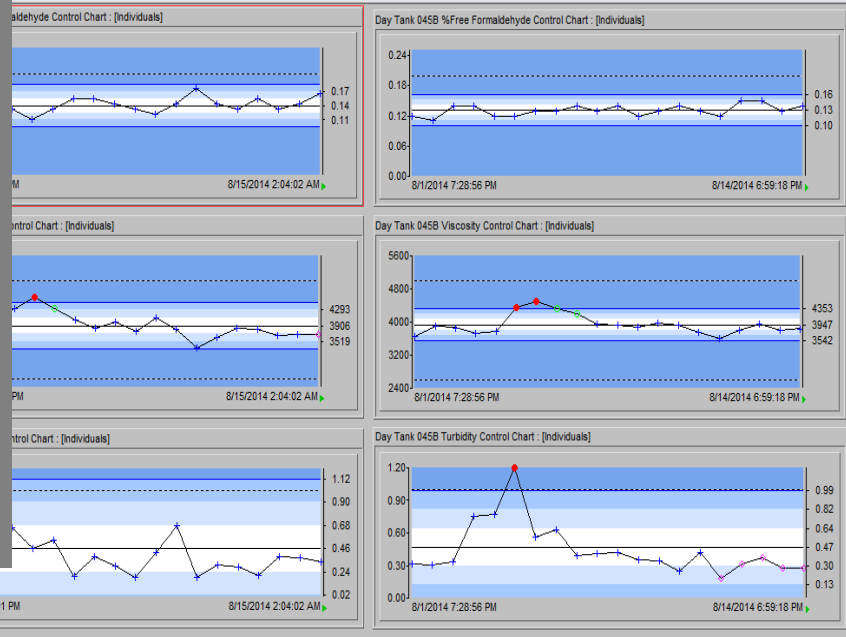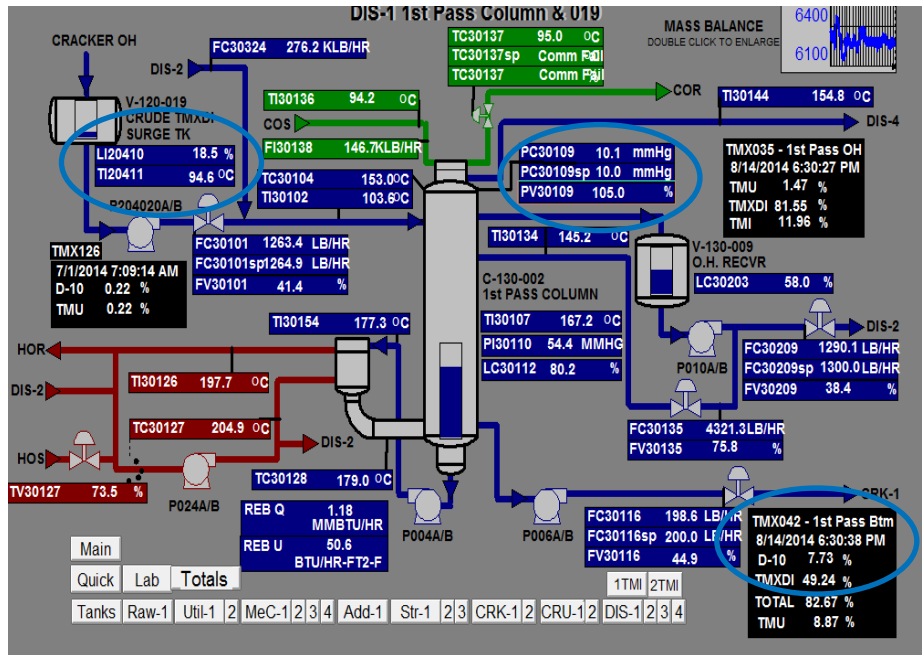
"Visual Graphics in PI ProcessBook using real-time PI Server data enable better process monitoring and faster troubleshooting for engineers and supervisors"
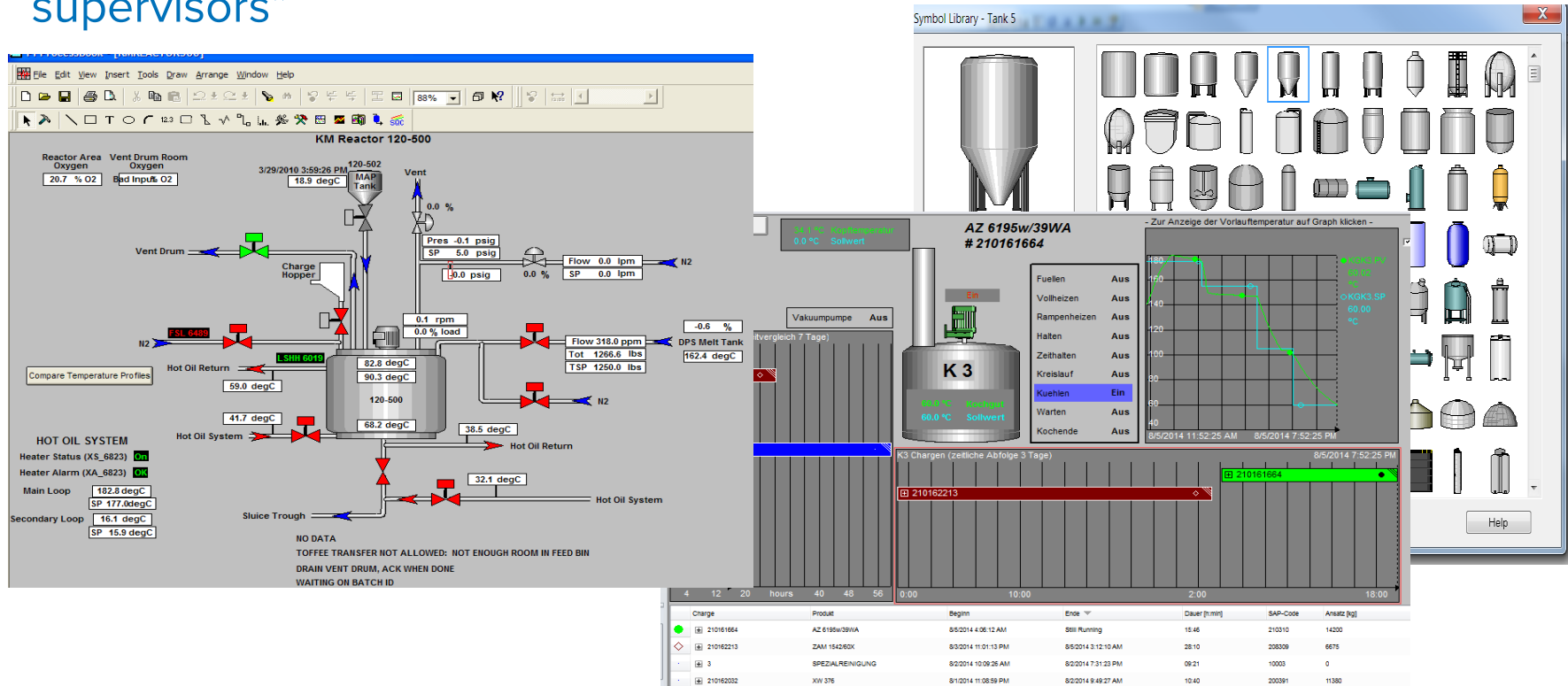
"The PI Server preventive maintenance tracking in PI DataLink using run-time evaluation for numerous production assets"

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

All About Resins

Benefits of the System

Global data access for all users

Centralized data platform

Applications for operational initiatives improving business-wide understanding and standardization

Horizontal integration between third-party systems, production plants and sites

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
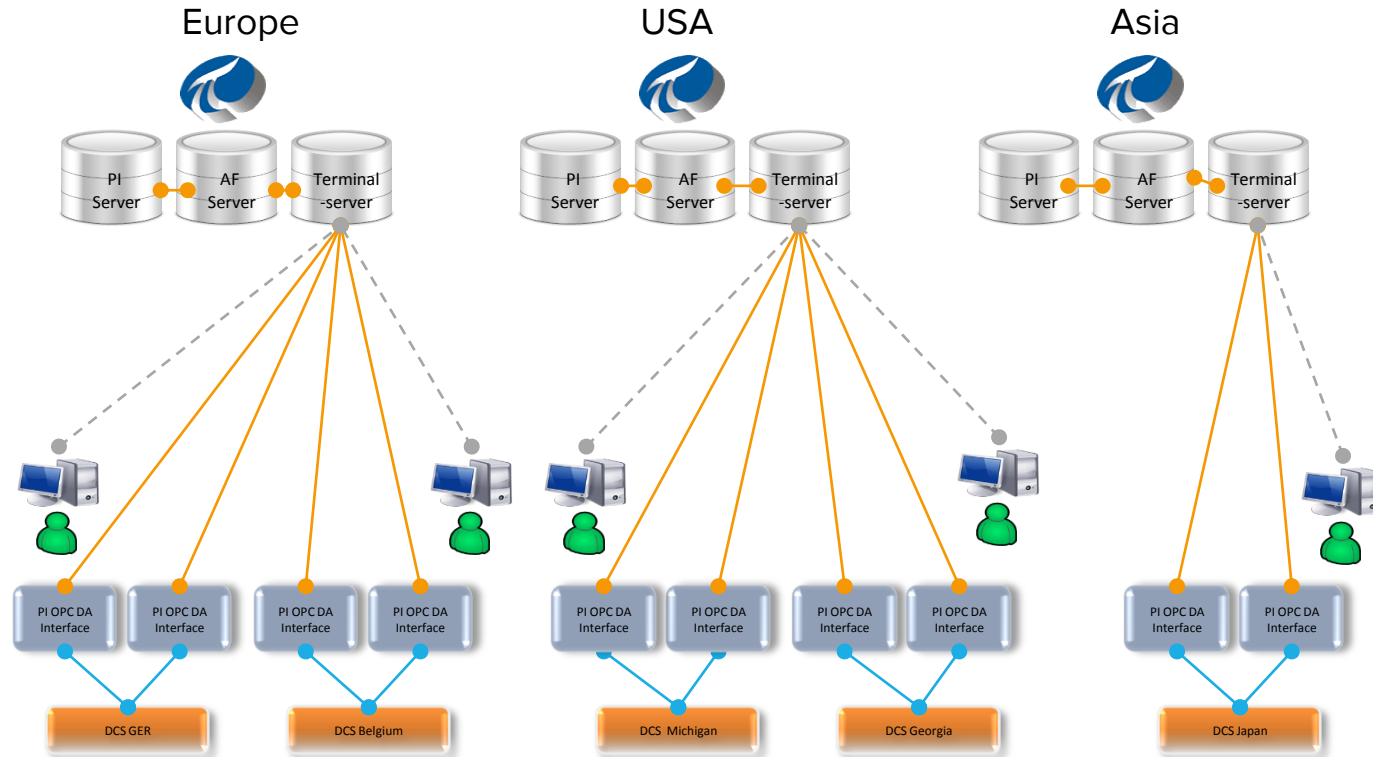
# Performance management solution for global production efficiency

- 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
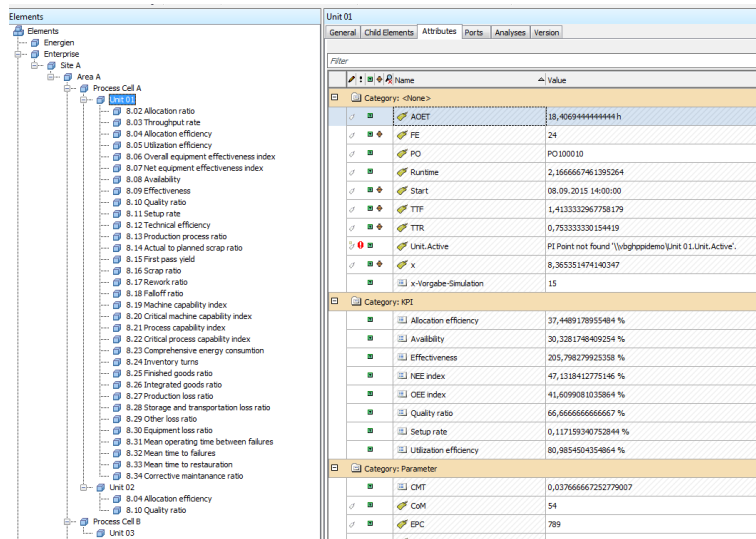
Energy management solution following ISO 50001

- 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
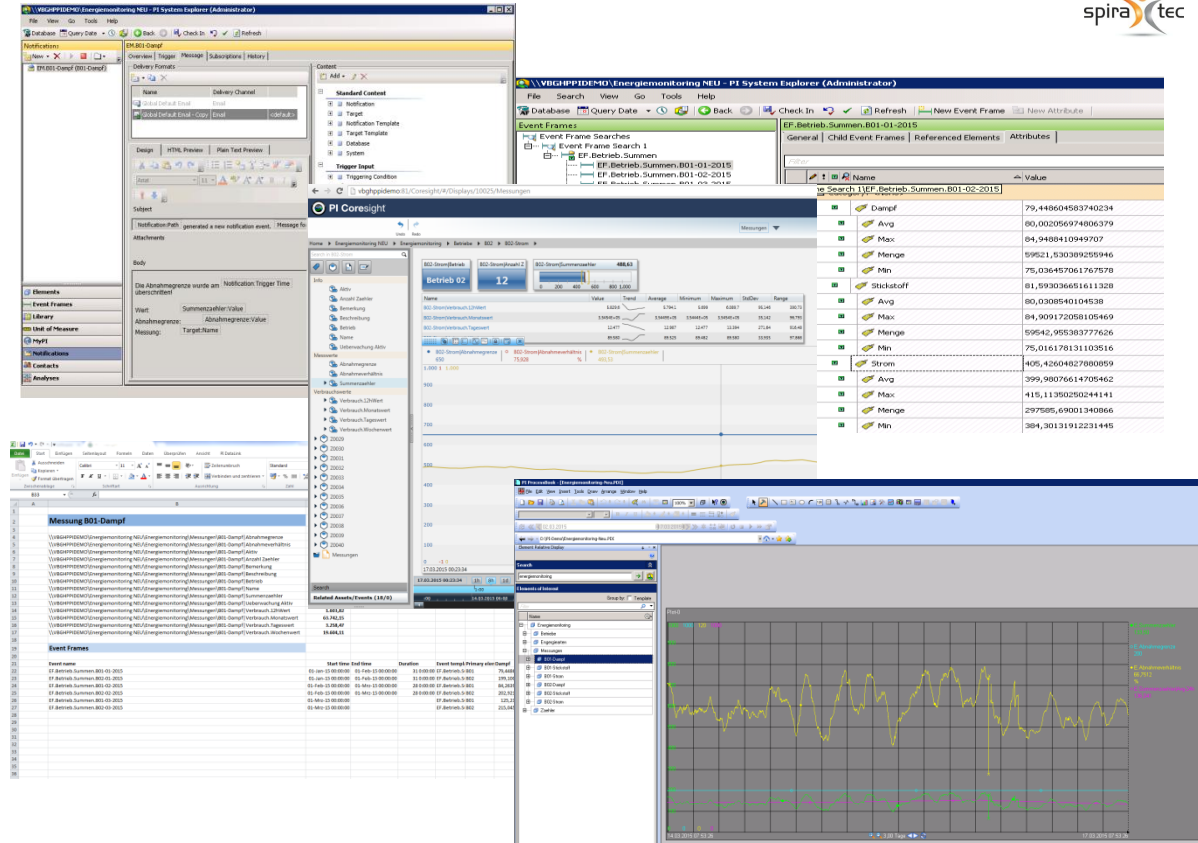
Summary

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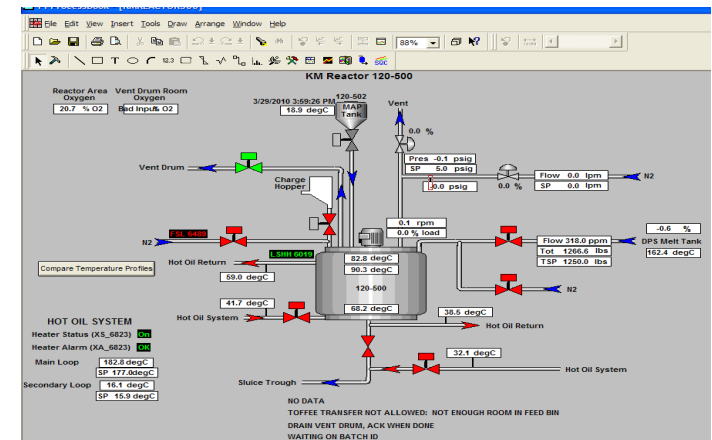
BUSINESS CHALLENGES	SOLUTION	RESULTS AND BENEFITS
A. Operations management initiatives for manufacturing excellence, energy management, etc.	A. Global, standardized system design with horizontal and vertical integrated IT infrastructure	• Centralized data platform with global access
B. Global communication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

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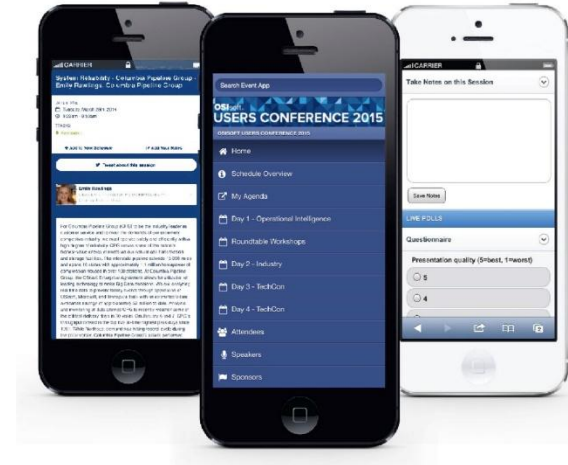Industrial IT Solutions

SpiraTec AG

Questions

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name & company

http://eventmobi.com/emeauc15

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감사합니다

谢谢

Danke

Gracias

Merci

Thank You

ありがとう

Спасибо

Obrigado

Allnex and SpiraTec thank you for your attention