Challenges Across the Process Industry

Changing Workforce Demographics
- Loss of Expertise
- Increased Movement in & across Organizations

Deploying Solutions
- Rapid Deployment
- Solution Scalability
- Training

Benchmarking Across the Enterprise
- Disparate Systems
- Silos of Data & Information
- Capturing & Extending Best Practices

Supporting Remote Operations
- Leveraging Expertise
- Enabling Broader Collaboration

Operational Excellence Initiatives
- Achieving Business Performance Goals
- Sustaining Benefits
- Continuous Improvement

How can enterprise software solutions help address these challenges …
So what is Enterprise Software?

- Single instance, Centrally deployed, Scalable
- Multiple instance, Centrally managed
Why Is Enterprise Software Important?

- **Process**: Standardize Organizational Processes
  - Improves Enterprise Productivity & Efficiency
  - People

- **Technology**: Consolidates Application Footprint & Support Needs

Enterprise Transformation
Connectivity Is a Game Changer for Process Industries

**YESTERDAY**

- **Field to Plant Focus**
  - Connectivity limited to plant level enabling plant decisions mostly

**TOMORROW**

- **Plant to Enterprise to Industry Focus**
  - Connectivity enables collaboration and drives new insights and optimization decisions across the industry ecosystem

**Honeywell “Connected Plant” Platform**

- Expert Involvement
  - HPS
  - UOP
  - OEMs

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**“Live Data Connection”**

- **Insights**
Digital Transformation

Inspire Service Platform
- Unifomrance Insight®
- Asset Sentinel
- PKI Manager
- Pulse

Big Data Analytics
- Cognitive Learning
- Tableau, R, etc

Digital Twin
- UniSim®
- 3rd Party Models

3rd Party Apps
- iNspire™ Partners

3rd Party Vendors
- iNspire™ Partners
- Supply Chain
- Service Management Platforms

Cloud Historian

SDX – Secure Data Exchange
Cloud Deployment is Synonymous with Enterprise OT

- Single instance
- Centrally managed
- Scalable

- Multiple instance
- Centrally managed
Enterprise OT Software Gaining Ground

- APC Rapid Deployment Program
- Enterprise Deployment Equipment Reliability Solution
- Leveraging Specialized SMEs
- Engineering Best Practices
- Centralized Operations Program
- Remote Operations Program
- Supply Chain Excellence
APC and Operational Excellence

• Leading companies view APC as providing a competitive advantage
• Use methods to ensure they obtained the greatest value at the lowest possible cost.
• With the high penetration of APC on large units, leading companies are looking for opportunities to apply APC in other areas including small-to-midsized process units.

Efficiency increases by systematic deployment programs & provides a large opportunity for success replication.

The effective use of APC is highly dependent upon the knowledge and skills of a company’s experts and upon its corporate strategies for implementing, using, and maintaining its applications.

Rapid Deployment – APC Rollout Program

Improve the relative competitive position by reducing waste in processes, through the reduction of process interventions using Advanced Process Control

Challenge Addressed
• Rollout of 70+ applications across the 10 mills in the Cellulous Business Unit
• Improve effectiveness of internal resources through the use of a single technology platform
• Development of a sustainability apparatus to provide feedback of performance and escalate issues leading to waste

Execution Plan
• Rapid implementation of Honeywell’s APC Profit® Suite & CPM to start capturing benefits
• Integrate multiple APC’s to maximize the reduction in process interventions and the automation of intellectual property
• Integrate APC’s between process areas to allow cost optimization beyond the normal process boarders

Benefits Delivered
• Purchased divisional software license - achieve benefit of scale and create a catalyst to deployment
• 14 of 25 approved APCs installed
• Use of standard technologies across all sites got controllers online 30% quicker (~1 month quicker)
• Capture Benefits Earlier - $300,000
• Productivity enhancements due to use of standard templates
• Deployment of soft sensors (Analytics) resulted in saving a minimum of one sensor per Mill
• Remote capabilities have provided the greatest innovation during deployment and on-going support
Enterprise Deployment – Equipment Reliability

Business transformation program identified the value of deploying an enterprise solution for real-time monitoring of the plant processes and equipment across 8 sites (refineries and petrochemicals)

Challenge Addressed
• Business needed a standardized way of monitoring of process and equipment across all plants in all sites
• Focus on improving and standardizing work processes across all functions
• Needed common solution for both Central Technical Services team and also the Technology Centers of Excellence (CoE) departments

Solution Delivered
• Uniformance® Asset Sentinel
• Uniformance® Process Studio
• Uniformance® KPI
• Intuition™ Executive

Benefits Delivered
• Real-time Process Monitoring functionality rolled out to 68 plants across 8 sites
• Eliminated time consuming, manual data gathering and preparation; now automated daily & monthly reports
• Knowledge repository building up over the years
• Drill down from business KPIs to process KPIs
• Monitor KPIs of critical equipment calculated through rigorous models with thermo packages
• Reduction in unplanned downtime of the plant due to proactive monitoring - early identification of equipment performance deterioration and maintenance planning

“Previously, equipment monitoring and performance information was on spreadsheets... published once per month, but now we can use tools like Honeywell’s Uniformance Asset Sentinel to check performance hourly and then make adjustments on the fly.”
Gas Network Operations Center (GNOC) centralizes operations of all 8 gas plants and provides a network-wide view for better management of supply chain and achievement of gas production targets.

**Challenge Addressed**
- Increasing demand for gas production on PDO as a result of increasing customer demand
- Major expansion gas process plants / network / number of wells
- Need for better coordination and optimization
- Tapping into the available expertise across the organization and gather in one place and

**Benefits Delivered**
- Increased coordination and collaboration due to centralization of operations, control and decisions
- Centralizing control and communications of PDOs internal and external customers
- Improved responses to gas supply emergencies
- Reduced HSE exposure
- More proactive operations management
- Improved customer supply management and overall management of the gas balance
- Improved, more efficient gas quality forecasting

**Solution Delivered**
- Honeywell control room of the future
- DynAMo Operations & Alarm Management
- Decision support solutions for forecasting and visualization capabilities of the overall network along with mission critical KPIs

*Bringing people, process, technology under one roof – enabling better, smarter, faster decision making from a localized center*
Remote Operations – Lundin Petroleum

Remote operation support of the Edvard Grieg Field in the North Sea

Challenge Addressed
- Support the Edvard Grieg Field under the philosophy of everything you can do onshore do it onshore – “it’s cheaper and easier“
- Develop Onshore Remote Monitoring & Remote Operations capabilities from Oslo office

Solution Delivered
- UniSim® Competency Suite
- Uniformance® PHD
- Uniformance® Asset Sentinel
- DynAMo® Alarm Management
- Process Safety Analyzer
- Production Control Center™

Benefits Delivered
- Near real-time view onshore of what is going on in the control room offshore
- Extensive communication between onshore and offshore teams
- Sharing the same data, onshore team helps in shutdown situations & production optimization
- Offshore staff trained onshore before being sent offshore - “money spent for training payback 5-6x”
- Saves offshore positions for Lundin
- 96% uptime in 1st year, unique in the industry

2016 Lundin Edvard Grieg received Project of the Year from Petroleum Economist
Operational Excellence & Industry Trends

D³ Power
Digital-Data-Driven Capabilities
Capture and share information across departmental boundaries - strengthening competencies, collaboration and common purpose

Real-time Decision Making
Make operations wired and data-driven
Integration of digital data supports better business decisions in real time

Remote Operating Centers
Operations technology data and information technology data merging

Increased Efficiency & Effectiveness
Maximize production / collaboration in operations / onshore centers / Operating in emerging markets - are constantly raising the bar for operational excellence

Changing Demographics
Talent is a big issue, in terms of training, quality and availability
Training is the biggest hurdle to implementing new technologies

Evolving Supply Chain
Customer centricity & differentiated service
B2B -> B2C
Business agility and visibility, drive End-to-End synchronization

With the growing need for greater operational excellence, the ability to leverage digital technology in plants and the supply chain will be a basic, table-stakes necessity
Value of Enterprise Software for Your Business

- Provides platform for achieving and maintaining benefits
- Helps identify, capture and propagate best practices across the enterprise
- Enables benchmarking across all assets/facilities/sites
- Leverages scarce resources and SME expertise, increases collaboration and remote support capabilities
- Supports the achievement of Operational Excellence goals
Enterprise Software

Single instance, Centrally managed