



Solutions for Operational Excellence



Emerging Trends in Technology Solutions for Improving Operational Performance

Bijan Shams, B.Sc. (EE), M.Sc.

Agenda



» About Cogent



» What Impacts Operational Performance?



» What are the Technology Trends?



» Modern Technology Solutions for Improving Operational Performance

About Cogent

Industrial clients leverage Cogent's **technology solutions** and **project management** services to build and modernize their facilities and empower personnel to monitor, manage and control their operational performance.

Our Mission: To empower industrial plants and facilities to achieve a **safe, reliable and efficient** operation.



Recognized Industry Leader



Cogent Services

Technology Solutions

- » Electrical power systems
- » Process control and automation
- » Industrial IT
- » Industrial information systems

Project Management Services

- » Project planning
- » Schedule management
- » Vendor management
- » Project controls

Operational Performance Programs

- » Increasing process safety
- » Improving operator effectiveness
- » Maximizing equipment availability



Industry Experience



Greenfield, Modernization, OEMs, Technology Upgrades and Support Services

What Impacts Operational Performance?

- » **Safety:** preventing accidents and minimizing the impact
- » **Reliability:** achieving the desired system and process uptime
- » **Operability:** running according to the designed operating conditions



What Impacts Operational Performance?

- » **Safety:** preventing accidents and minimizing the impact
- » **Reliability:** achieving the desired system and process uptime
- » **Operability:** running according to the designed operating conditions

Examples:

- Emergency shutdowns & recovery
- Missed Alarms
- Personnel / operator Error

What Impacts Operational Performance?

- » **Safety:** preventing accidents and minimizing the impact
- » **Reliability:** achieving the desired system and process uptime
- » **Operability:** running according to the designed operating conditions



Examples:

- Health of operational systems
- Correct & timely maintenance

What Impacts Operational Performance?

- » **Safety:** preventing accidents and minimizing the impact
- » **Reliability:** achieving the desired system and process uptime
- » **Operability:** running according to the designed operating conditions

Examples:

- Intuitive (high performance) operator stations
- Operator and technician training
- Alarms and events management

Safety, Reliability & Operability are Interrelated

- » Lack of **system reliability** affects **process safety**
- » Lack of situational awareness by **operators** affects **process safety**
- » Poor **operating conditions** affects **equipment reliability**
- » Unchecked process disturbances diminish equipment **reliability** and **process safety**



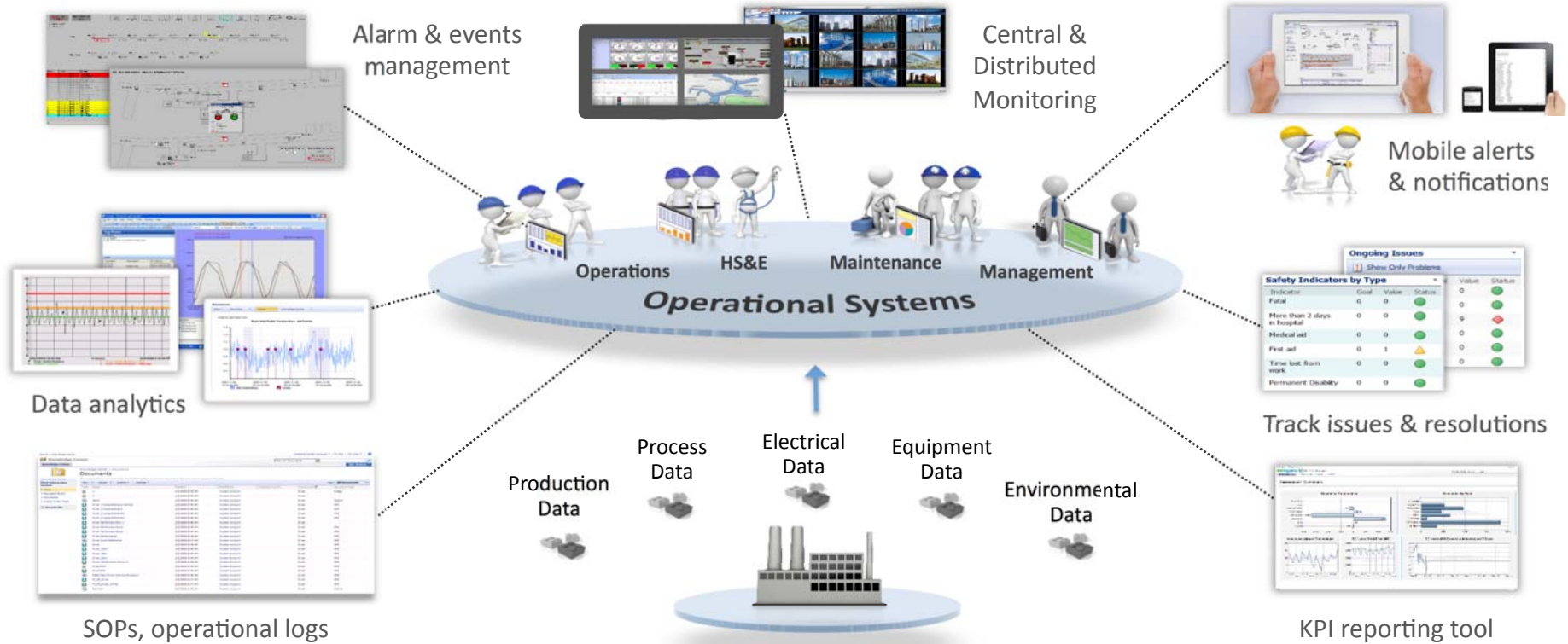
What are the Current Technology Trends?

- » **IoT**– Connecting to intelligent devices (Home security, smart meters)
- » **Big Data** – Business Intelligence (Trends and abnormality predictions)
- » **Real-time Connectivity** (Flight info, traffic conditions)
- » **Social Media** (Group connection and collaboration)
- » **Mobility** (Cell phones, emails, tablet, text)
- » **IT / OT Convergence** (Autonomous cars, robots)

Adopting Technologies to Improve Operational Performance

- » **Integrated (holistic) approach** to managing plant performance (Safety, Reliability and Operability)
- » Increased **operational visibility**
- » Improved **decision support** based on timely, accurate information
- » **Collaboration Hubs:** Operation staff can collaborate and manage risks cooperatively
- » Centralized **Knowledge Management:** capturing and fast access to information
- » **Reduced downtime** through real-time monitoring

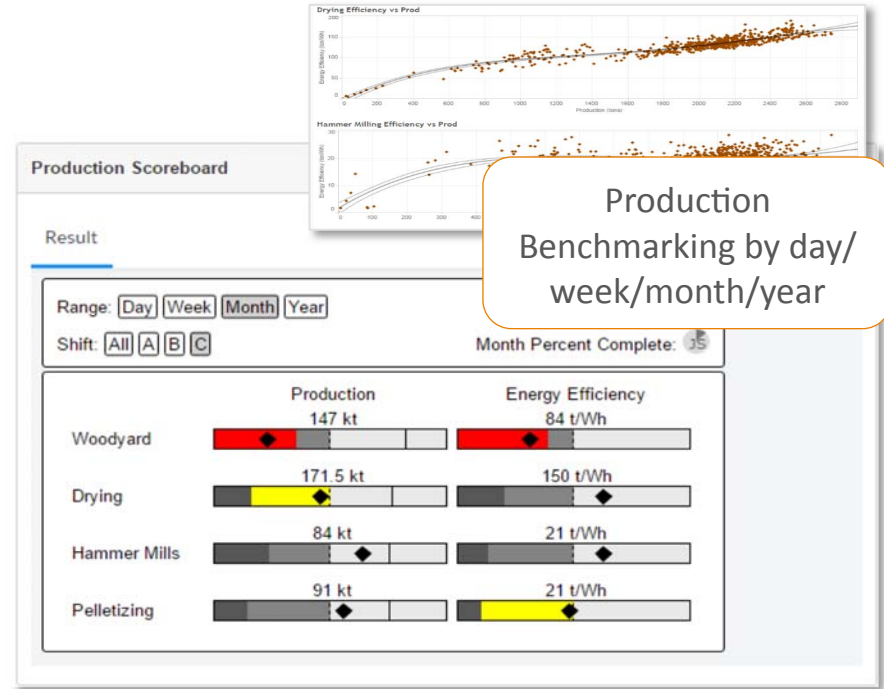
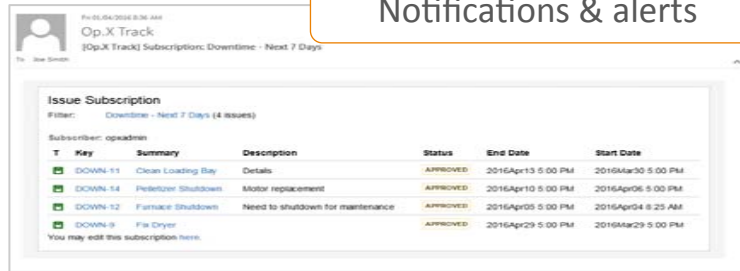
Modern Operational Systems



Integrated Technology Solution

Performance Dashboards

- » Real-time production tracking
- » Key performance indicators
- » Benchmarking
- » Notifications and alerts



Collaboration Hub

- » Announcements and updates
- » Improve interdepartmental communication
- » Streamline and automate workflows



ID	Title	Description	Status
1362	Transfer pump length	Stand length has a greater variation than expected.	Open
1363	There are more than 1000 issues	There are more than 1000 issues.	Open
1364	Energy system load test	Change the value of the test in the log.	Open
1365	Energy system load test	Change the value of the test in the log.	Open
1366	Energy system load test	Change the value of the test in the log.	Open
1367	Energy system load test	Change the value of the test in the log.	Open
1368	Energy system load test	Change the value of the test in the log.	Open
1369	Energy system load test	Change the value of the test in the log.	Open
1370	Energy system load test	Change the value of the test in the log.	Open

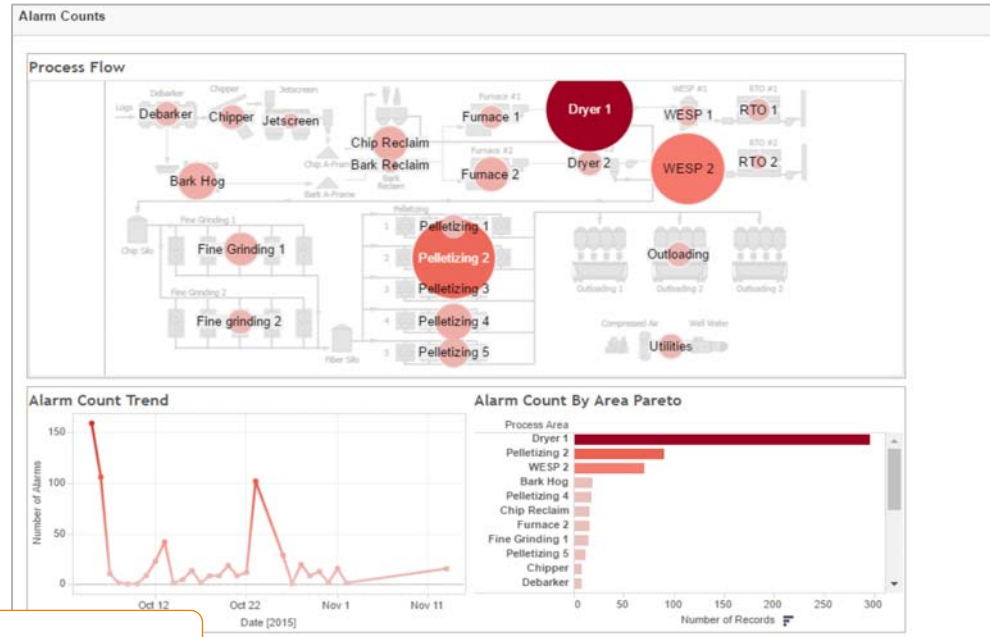
Shift & Issues resolutions logs

Safety Inspection Log	
ID	Title
13630	Ne
13631	Ne
13632	Mi

Resolutions	
Issue ID	Title
37	Energy system load Test
24	Energy system load Test
23	Energy system load Test
22	Dryer Inlet has stiction
21	Dryer Inlet has stiction

Alarm Monitoring

- » Historical alarm data and trends
- » Isolation to specific process area



Alarm count

Issue Tracker

- » Issue creation, tracking and escalation
- » Assign and prioritize issues to streamline workflows

The screenshot displays a comprehensive issue tracking interface. At the top, a table titled 'Filter Results: Issues - Unresolved' lists two issues: 'Dryer Inlet has stiction' (EV1, 2016-03-30, To do, ISSUE-194) and 'Strander Poor Length' (ES1, 2016-03-30, 1 - Supervisory, To do, ISSUE-193). A callout box labeled 'Issue tracking' points to this table. Below it, 'Issue Statistics' shows 2 issues at 100%. The 'Issues Calendar' shows a grid for February and March 2016, with a callout for 'Planned downtime tracking' pointing to a green bar on March 31. The 'Edit Issue : ISSUE-194' window shows details for 'Dryer Inlet has stiction', including 'Escalation Level: None', 'Hold Reason: None', 'Priority: High', and 'Assigned' individuals. A callout box labeled 'Assign Priority & Resource to each issue' points to the priority and assigned fields. A calendar view on the right shows a green bar for 'Planned downtime tracking' on March 31.

Knowledge Base

- » Access Knowledge Center
- » Store and search best practices, SOPs, Logs, and Reports

Technical Knowledge Home

Created by Thomas Kuehn, last modified on 2015Feb25

This area of the Cogent Hub has been setup to organize internal technical knowledge.

- Electrical and Control Systems Design
 - Industrial IT
 - Backup and Recovery
 - Camera Systems
 - Hardware
 - Internet of Things
 - Monitoring
 - Network Design and Security
 - Software
 - Virtualization
 - Wireless
 - Operations Information Management Systems
 - Guidelines
 - Internal Tools
 - Job-Aids
 - Sample Library
 - Technical Articles
 - WIP Collaboration Content
 - Process Control and Automation
 - Control Systems
 - Field and Control Network Communications
 - General
 - Industrial Process
 - PLC Configuration

Guidelines List

Each page below contains the best practices for a specific type of task. These methods should be followed when at all possible to ensure consistency across systems and projects.

For more detailed instructions on completing a specific task, please refer to the Job-Aids section.

Guideline	Contributor(s)	Summary
System Platform Revision Control	• Chris Stewart • Jonathan Long	The method is used as a SOP
Architect Object Naming Standard	• Chris Gray • Chris Stewart • Jonathan Long	This guideline Architect Gal

Article List

The document list contains only files with content, with the exception of pages used for subject matter grouping. Pages used for subject matter grouping should ideally have at least a quick explanation of the content, but at least of the very least have a header display.

Technical Articles

- Alarm Management Articles
 - Alarm Management
- Communication Articles
 - OPC Unified Architecture (UA)
 - PingPong - Monitor Network Connection using Application Object Script
- Data Integration
- FactoryTalk View Articles
- Historian Articles
 - Wonderware Historian Backstory
- Human Factors Engineering
- Navigation Articles
 - The Babel Workload Management Method (BWP)
- Simulation Articles
 - Full Simulated Environment (Sg/TwinMMS)
 - Simulation-Based Training
- System Platform Articles
 - Core Studies
 - Project Management
 - Redundant Engine Hosted by Multiple Platforms
 - System Platform Development / Configuration Needs to be broken down into smaller articles
 - UDA and PA Value Retention and In-ops Execution during OP Events

WinCC Configuration

Knowledge base

Technical articles, guidelines, etc.

Search function

Benefits of Modern Operational Systems

- » Expand operational visibility
- » Increase productivity and safety
- » Improve situational awareness
- » Monitor and analyze operational performance
- » Manage issue resolution effectively
- » Capture and share knowledge
- » Break down silos across workgroups and improve collaboration
- » Drive continuous improvement and benchmarking



Discussions

Cogent Industrial Technologies

Suite 180 – 13091 Vanier Place

Richmond, BC Canada

Contact:

Bijan Shams, President

bijan.shams@cogentind.com

www.cogentind.com

