Performance Management and OEE Solutions

OPS INFO-01
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Agenda

- The Business Value of Performance Management
- The Wonderware Performance Management Offering
  - Solution Overview
  - What’s new
- Customer Success
- Quick Demonstration
- Q&A
What is Performance Management
OEE, a Key Metric of a Lean Approach

- One of the key tools in a successful lean approach is Total Productive Maintenance (TPM) which provides a holistic approach to equipment maintenance. OEE or similar KPIs are used to track progress in reducing the 6 major performance losses in a TPM program.

**Loss Categories**
- Changeover losses
- Breakdown losses
- Minor stoppages
- Speed losses
- Start up losses
- Quality and rework losses

**Overall Equipment Effectiveness is based on 3 contributing factors**

\[ \text{OEE} = \text{Availability} \times \text{Performance} \times \text{Quality} \]
The Business Value

- The effective utilization of plant assets are a key driver for profitability, optimizing capital investments and maximizing the return on those assets. OEE (Overall Equipment Effectiveness) is one of a number of important KPI that allows operators and supervisors to easily understand how effectively those assets are being used.

- Wonderware's Performance Management offer provides an easy to deploy and use solution to automatically or manually collect machine and line performance data, calculate OEE or other KPIs and present them to plant floor and business users to:

  - Increase the capacity of your existing assets by pinpointing the causes of unplanned downtime to improve operational efficiencies
  - Leverage best practices by comparing line-to-line and plant-to-plant performance, including real-time production costs and OEE (Overall Equipment Effectiveness) measures
  - Improve asset utilization by identifying production bottlenecks more quickly
  - Increase supplier accountability (e.g., during production or production line startup) by monitoring materials performance through the transformation process
A Scalable Solution, from Machine to Enterprise

- Summary and aggregation by Plant; Comparison between plants
- Line aggregation and KPIs; Order management
- Calculate actionable KPIs; Machine job management
- Manual or automatically assign reason codes to events
- Manually or automatically capture machine events
- Enterprise Performance Management
- Line Performance Management
- Machine Performance Management
- Reason Codes
- Machine Events

- Provides plant level and enterprise wide support for operation management
- Simple deployment across sites with a template based approach
- Provides line management, work order planning and operational reporting. Supports line continuous improvements like debottlenecking
- Provides operator visibility and feedback. Allows job planning and optimizes machine performance
- Supports machine reliability improvements and maintenance planning
- Provides operator visibility and decision support

Wonderware Conference. Schneider Electric confidential.
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**Business Value**
- Improve Asset Utilization and OEE
- Increases the Capacity of Existing Assets
- Facilitates Continuous Improvement

**Key Capabilities**
- Detect, Capture & View Utilization Events
- Automated & Manual Data Collection
- Real-Time Visibility to Production Performance KPI’s (OEE) for Machines and Lines (OEE)
- Monitor Line Work Order Status and Production Rate
- Indication of Line Bottleneck and Schedule adherence
- Enables Root-Cause Analysis of capacity losses
Wonderware MES Performance Features

Equipment Utilization

- Monitor and Record Equipment State
- Capture Equipment Utilization (uptime/downtime) Events
- Automatically or Manually Assign Reason Codes
- View Equipment Events
Wonderware MES Performance Features

**Equipment Performance**

- Capture production and scrap counts (manual or automated)
- Monitor OEE information
Wonderware MES Performance Features

Line Management

- Determine Bottleneck position within the line
- Manage work orders/jobs for the line
- Display Line summary information such as Line OEE, production counts, utilization, state of bottleneck position, and work order status
Flexible, Robust Data Collection

Automated, Semi-Automated & Manual...

- Supports **multiple methods for manual data collection** such as HMI’s, Web clients and Mobile devices
- Provides robust **automated data collection** through **System Platform MES Template** (Utilization Object)
- Leverages **System Platform** device connectivity to interface to **any plant information source**
- A platform for **standardization** in support of industry standards such as OMAC/PackML/ISA-88/ISA-95
Real-Time Visibility of Equipment Performance

- Drive better equipment utilization through **operator awareness**
- Provide visibility to **key performance metrics in real-time**
- Drive collaboration and **continuous improvement**
Real-Time Visibility of Equipment Performance
Performance Reporting w/Drill Down…
Wonderware MES 2014 Reporting featuring Wonderware Intelligence

- MES Reporting Database
  - Utilizes Wonderware Intelligence to build reporting data model
  - Included in MES/Performance license for one MES database instance
  - Supports “Performance” reporting
    - Supports “Line” OEE/Utilization/Production reporting

- Reports
  - Entity Production
  - Line Production
  - Utilization by Entity
  - Utilization Analysis
  - OEE Analysis
  - Mean Time Between Failures
  - Mean Time to Repair
  - Utilization Timeline
Wonderware MES 2014 Reporting featuring Wonderware Intelligence

- Entity Production
- Line Production
Wonderware MES 2014 Reporting featuring Wonderware Intelligence

- Mean Time Between Failures
- Mean Time to Repair

Mean Time Between Failures (MTBF)
From: 1/1/2015 To 1/17/2015

Mean Time To Repair (MTTR)
From: 1/1/2015 To 1/17/2015
Wonderware MES 2014 Reporting featuring Wonderware Intelligence

- Utilization by Entity
- Utilization Analysis
- OEE Analysis
- Utilization Timeline
Benefits Using Wonderware MES Software

Improvements reported by Wonderware MES Software Customers

Survey results are publicly available:

Tech Validate Results
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Case Study – New Belgium Breweries

Results

- OEE increased from 45% to 65% in just over 2 years
- Decreased downtime by more than 50%
- Efficiency of scheduled run time increased by 25% - 30%
- Achieved record production weeks producing 190,000 to 200,000 cases consistently, successfully meeting customer demands
- Extended packaging area capacity to about 1.3 million barrels each year
- The brewery was able to delay capital investments, enabling it to maintain lower operating costs

“With Wonderware MES Performance Software coupled with New Belgium’s continuous improvement strategy, we have extended our packaging area capacity to about 1.3 million barrels each year. At this point, our approach to higher volumes is ‘bring it on.’”

—Joe Herrick, Packaging Systems Manager
New Belgium Brewing Co.
Let’s see a demonstration!

- What we’ll see:
Thank you!