# Wonderware®

## by Schneider Electric

control • disrupt • embrace • improve

# Quality – Manufacturing Operation Transformation

## Improve Food Safety by Controlling, Monitoring and Securing your Facilities

Paul Alcock
Senior Technical Sales Consultant

22nd May 2017

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CAUTION
CAUTION

# Key trends in the Food and Beverage market

Demographic Changes

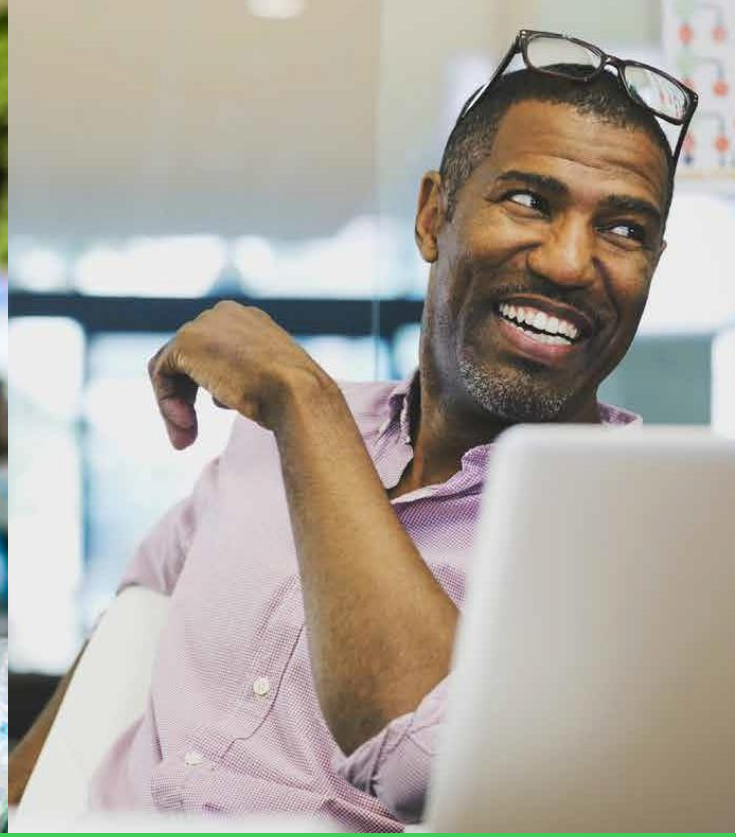
**Population growth and aging, rise of middle class, urbanisation in emerging markets**

Sustainability

**Environmental protection and management of energy and water resources**

Health and Safety

**Growing food safety and healthfulness concerns. Consumer confidence**



Customers Safety

Reduce Waste

Brand Protection

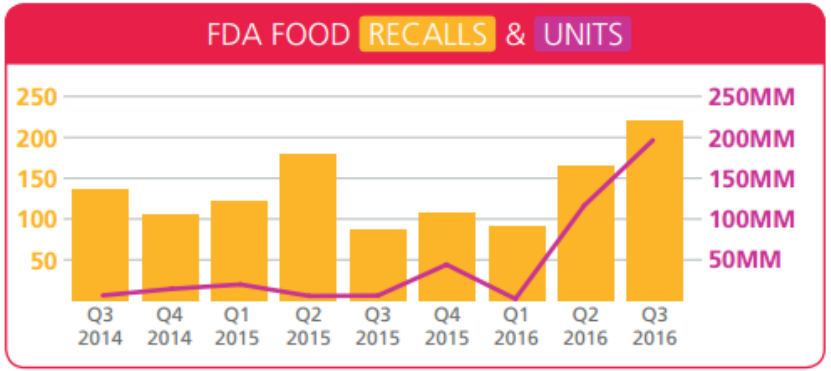
# Market Trend

## Rising Number of Recalls

- The 3 main causes of recalls are undeclared allergen, bacteria presence, and mislabeling.
- Euro 1M – 10M projected cost of a recall.

### *Consumer Sentiment*

- 14% will completely discontinue purchasing the product
- 21% say they will never buy anything from that company again
- 50% will switch brands temporarily
- 22% average decline in company stock price within 2 weeks of recall

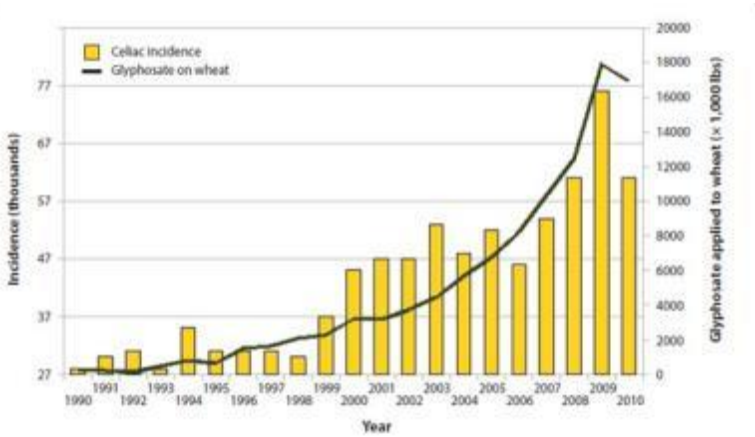



Source: ExpertRecall Index

# Market Trend

## Rising Demand for Allergen-Free Products

- 8% of children have a food allergy
- 38% of food allergic children have a history of severe reaction
- 150 to 200 Americans die from food allergies annually
- 8 foods account for about 90% of allergic reactions:
  - Milk, Eggs
  - Peanuts, Tree Nuts
  - Fish, Shell fish
  - Soy, Wheat




***Gluten Intolerance***

from hospital diagnosis (USA)

Source: USDA:NASS; CDC

# Wonderware Software from Schneider Electric F&B Solutions:

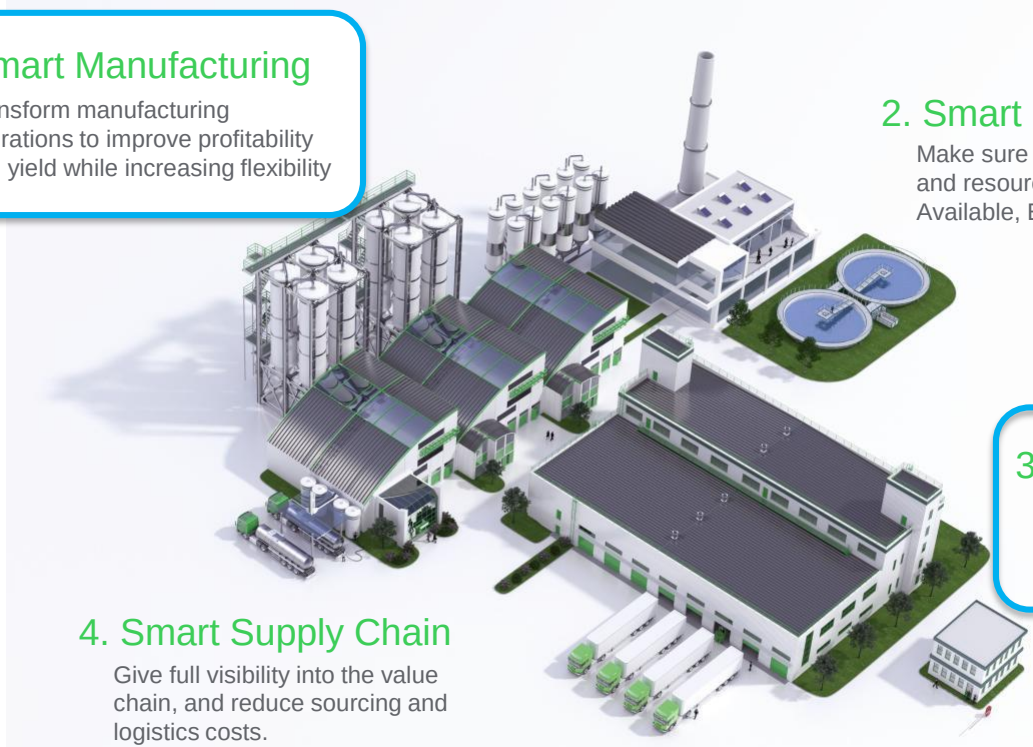
From **farm to fork**, we **improve traceability, sustainability and efficiency** of your operations.

## 1. Smart Manufacturing

Transform manufacturing operations to improve profitability and yield while increasing flexibility

## 2. Smart Facilities

Make sure production facilities and resources are Safe, Available, Efficient and Green.



## 3. Smart Food Safety

Help food safety compliance and traceability to preserve brand equity and shareholder value.

## 4. Smart Supply Chain

Give full visibility into the value chain, and reduce sourcing and logistics costs.

# Key Elements of Manufacturing Operations Transformation

## People

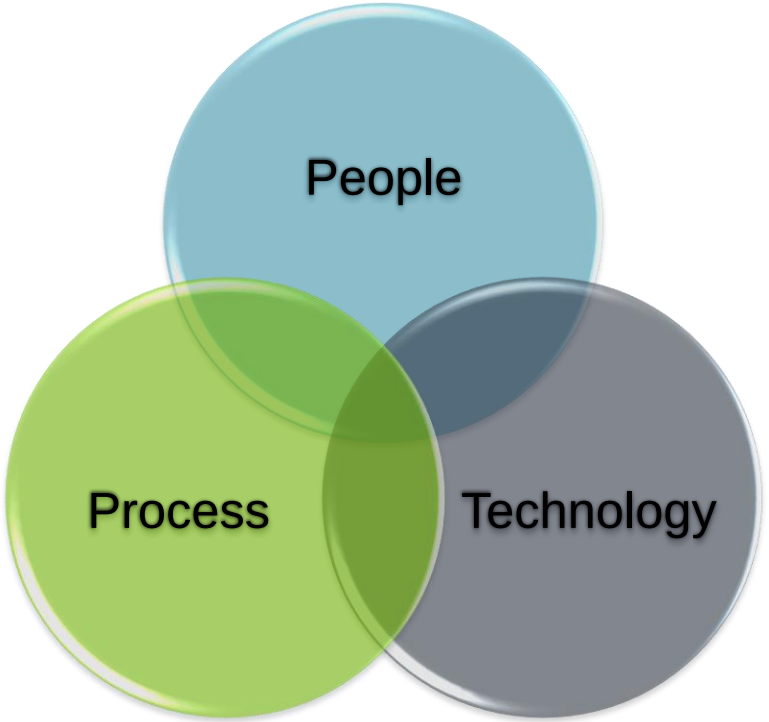
- Collaboration between users across the plant in operations, quality and maintenance who have real time visibility into the plant processes and are trained and equipped to perform their jobs

## Process

- Operational actives that are defined as processes that drive user tasks and collaboration between equipment, MOM software and business systems

## Technology

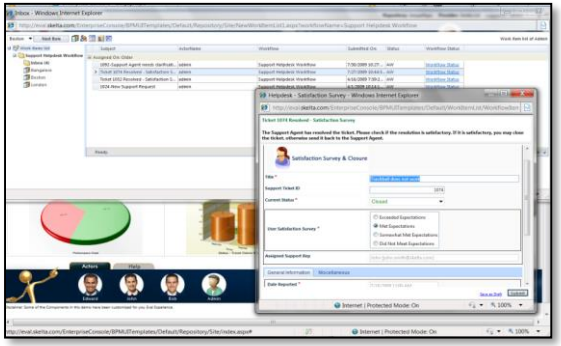
- A collaborative digitization platform that brings a governed, process based approach to operations, working between equipment, plant applications and business systems, within a single plant, and across multiple sites



# People

People are the key to improving operations. Productive gains are made through a common visualization approach across all the users of the system with

- Real-time visibility to work tasks
- Composite UIs to simplify work processes that cross over application boundaries
- Exception handling, work queues and escalations
- Coordinated tasks between plant teams



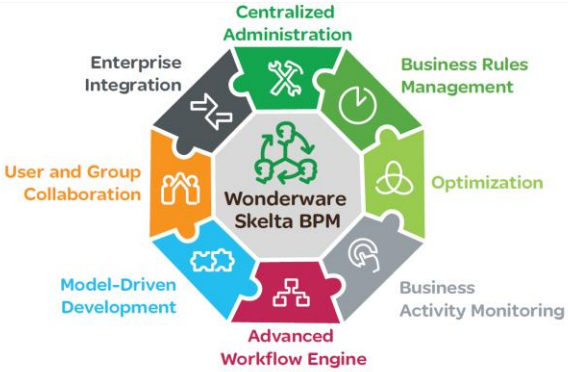
User tasks are digitized and seamlessly integrated into workflows within and between applications

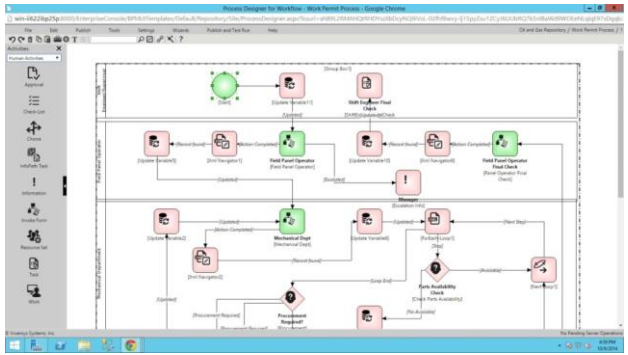
- End-users interact with workflow tasks via HMI, web browser, smartphones, tablets, email, and IM
- Work processes executed in a consistent and governed manner
- Orchestrates people and applications into effective and sustainable business processes

# Process

In manufacturing operations processes may be

- Production related activities
- Maintenance related activities
- Quality related activities
- Warehouse, Logistics related activities
- Environmental, Health & Safety related activities



## Our approach to Manufacturing Operations Transformation

- An application model, that is graphically defined, not programmed with real time, graphically defined operational processes for normal, unscheduled or disruptive events
- Fully integrated with automation and enterprise systems
- Allows common operational processes to be used across multiple plants, with the flexibility and agility needed by those plant

# Technology

Highly accessible from multiple computing platforms

Detailed analytics and reporting supporting operations and continuous improvements

Comprehensive framework for modeling & executing work processes

Superior data collection & equipment and device integration

## Collaborative Digitization Platform

Reporting and Analytics

ERP/Supply Chain Integration

Real time Events & Data

Supply chain Triggers & Data

Operational Activities Framework
Production-Materials-Quality-Maintenance

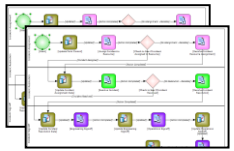
Real time Events & Data

Distributed real-time platform

## Configurable & Adaptable Operations Content

Operational Activities

User Interfaces



Business Rules

Automation Templates

Utilization Capability

Operations Capability

Sample Recording

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# Wonderware Technology

## Model-Driven MES…

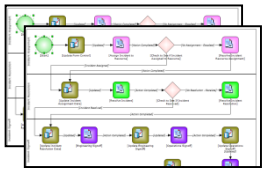
### Common Plant Activities:

- Managing Orders & WIP
- Managing Quality
- Managing Material Deliveries & Stock
- Managing Equipment & Labor
- Performance Monitoring
- etc…

| | | |
|---|---|---|
| Labor Mgt. | Material Mgt. | QA Release |
| Workstation Mgt. | Inventory Receipt | Quality Inspections |
| Order Dispatching | Inventory Transfer | QA Disposition |
| Energy | Line Performance | Label Assurance |

Operational Activities

User Interfaces



Business Rules

Application Models

**Operational Activities Framework:**

Wonderware Skelta BPM

Wonderware System Platform

Wonderware InBatch

Wonderware MES

Wonderware Recipe Manager Plus

Legacy or 3rd Party App.

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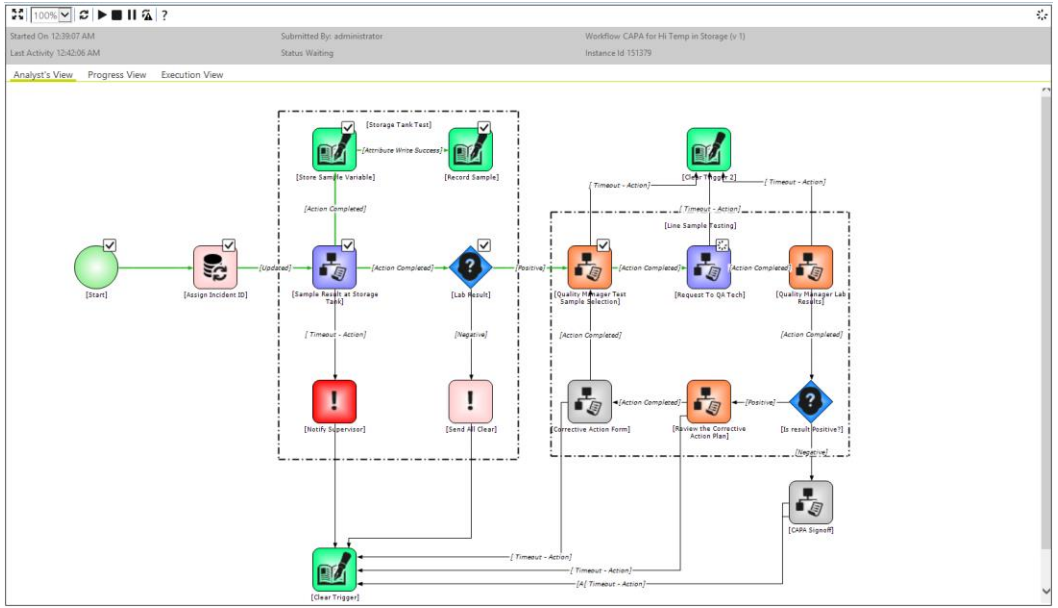
# Corrective Action

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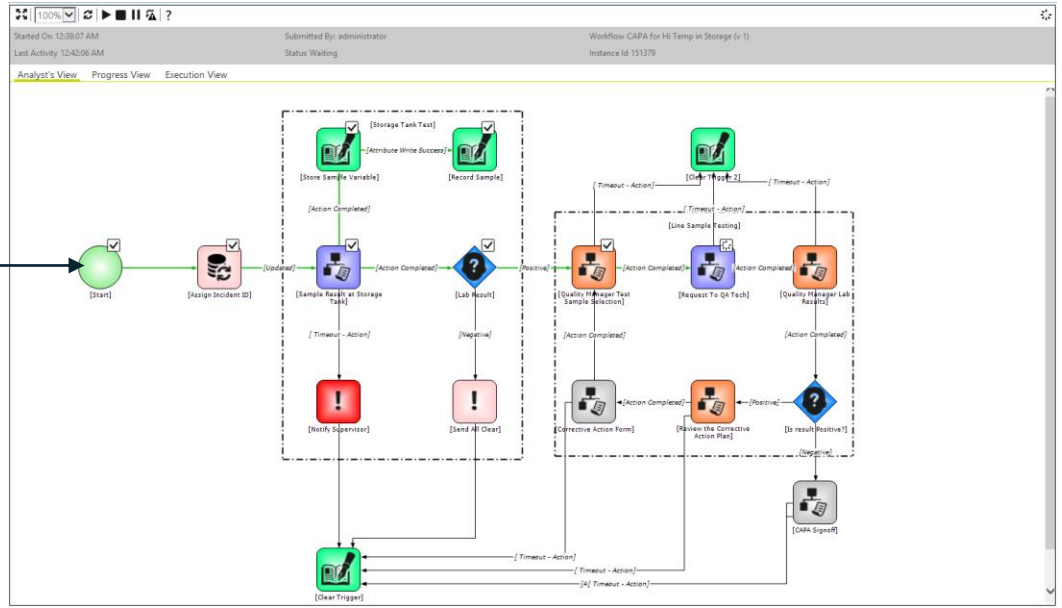
# Corrective Action

- System Detects a Temperature Violation on Blending Tank1 (HACCP)
- Triggers a workflow
- Triggers an alarm

**Blending Tank 1**



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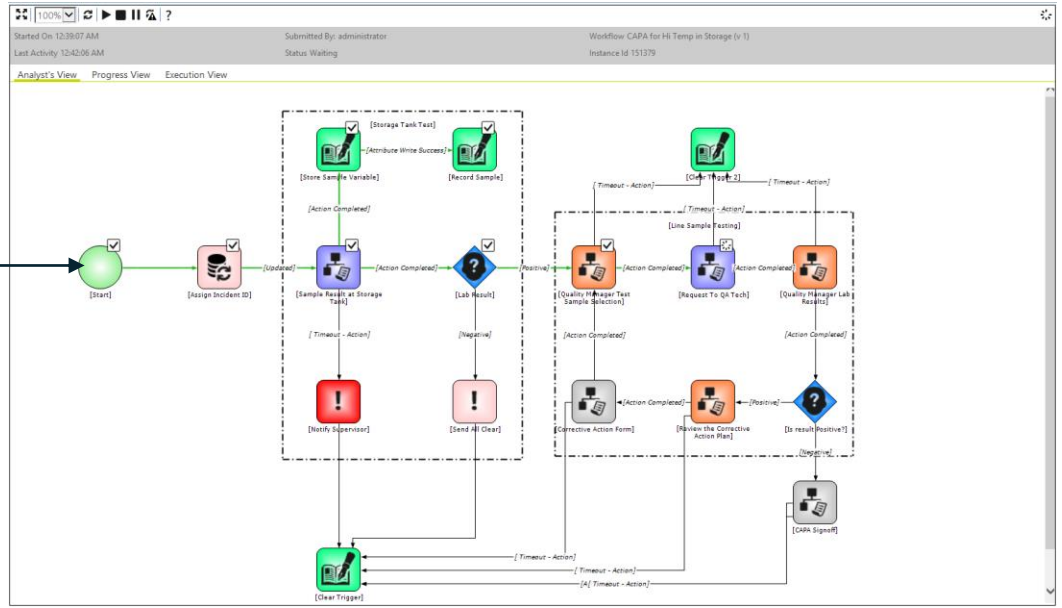
Wonderware System Platform

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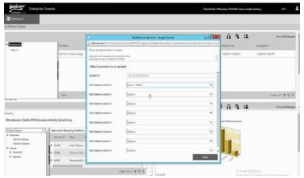
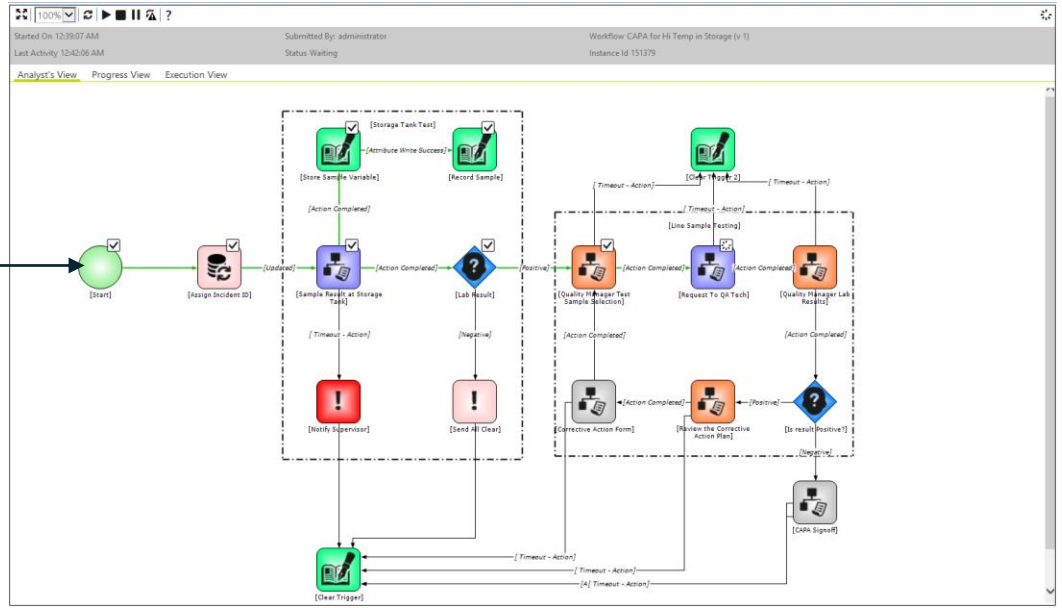


Chris
(QA Manager)

- Receives an email with notification
- Fills in form and sends notification

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Wonderware
System Platform

Wonderware by Schneider Electric

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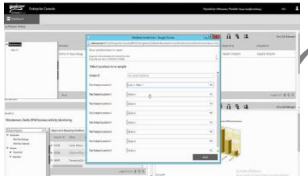

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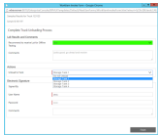

- Is notified of need to do test
- Performs test
- Fills form

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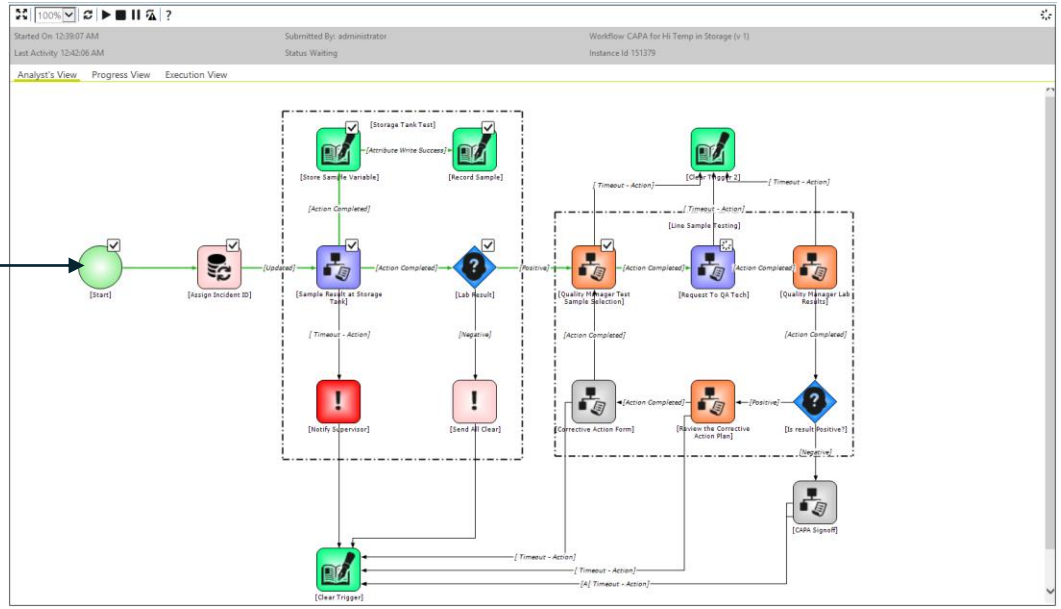


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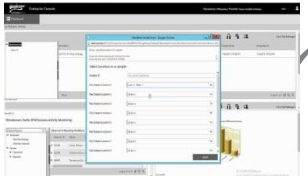

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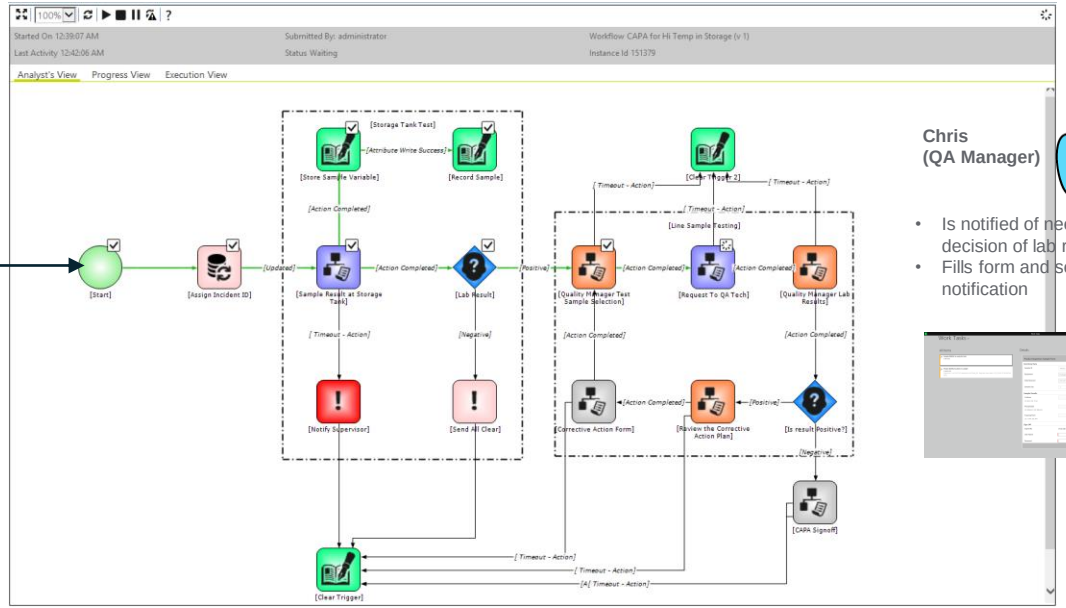
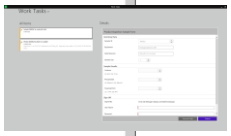



**Chris (QA Manager)**

- Is notified of need take decision of lab results
- Fills form and send notification



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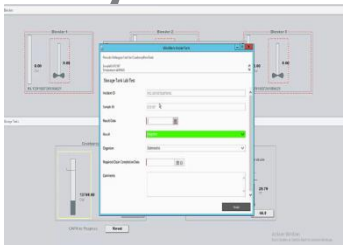

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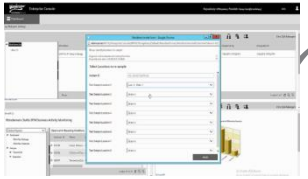

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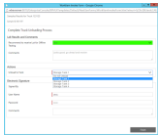

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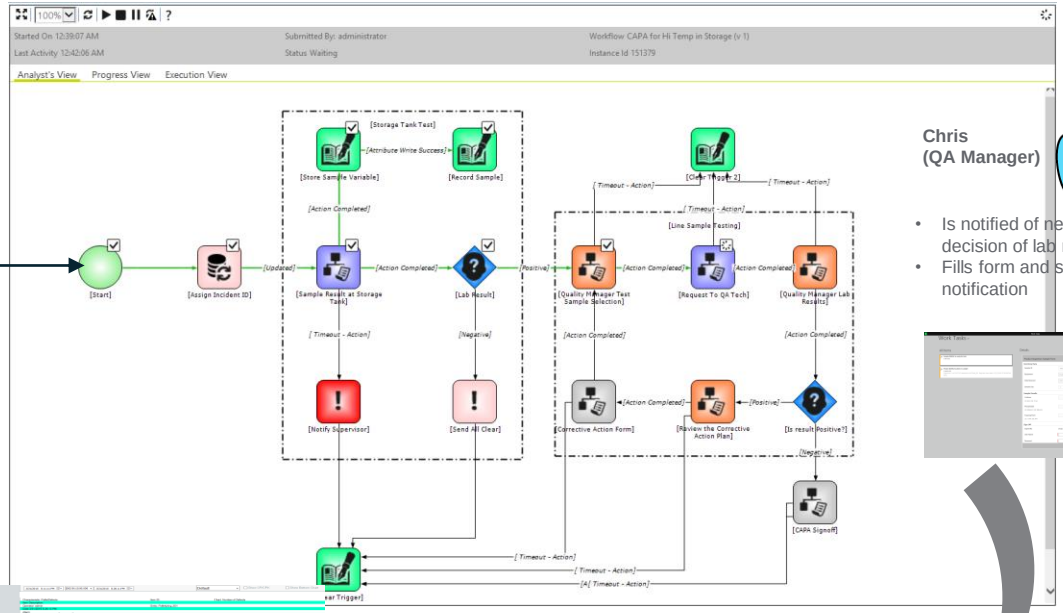
Wonderware System Platform

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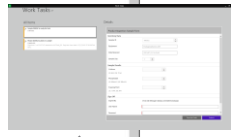

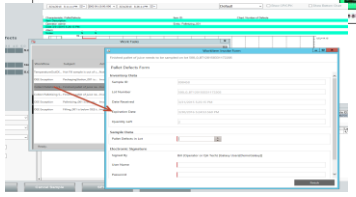

**Jill**
**(QA Director)**

- Is notified of closing process
- Fills form

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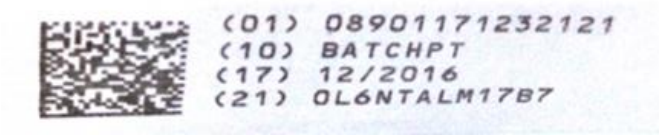
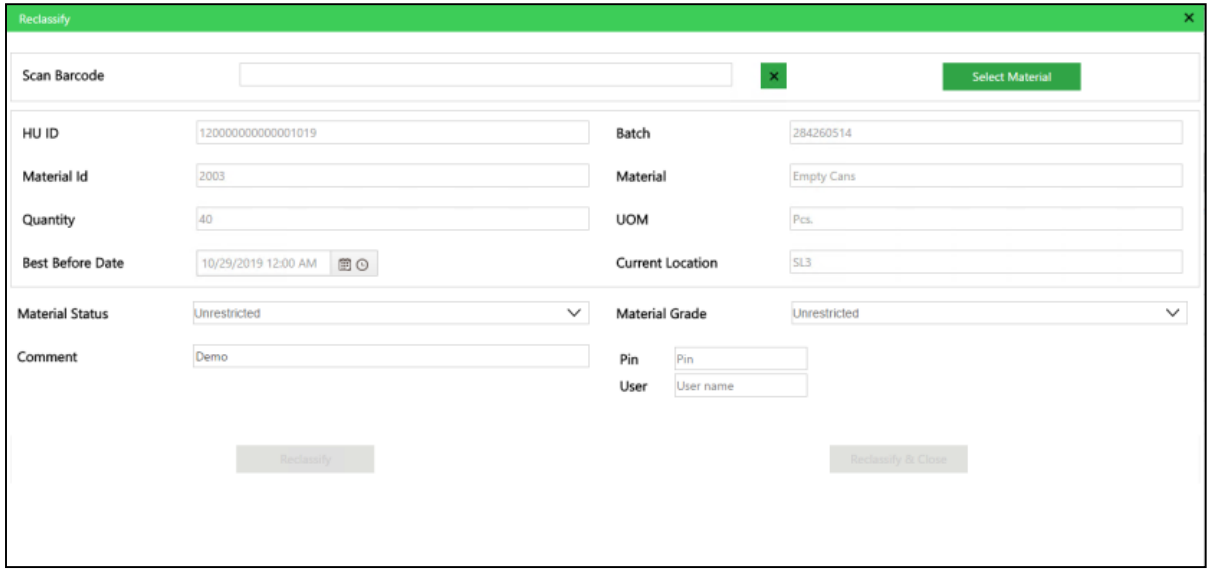
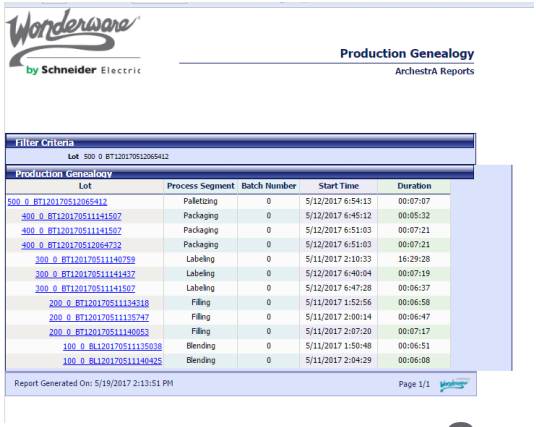
# Traceability

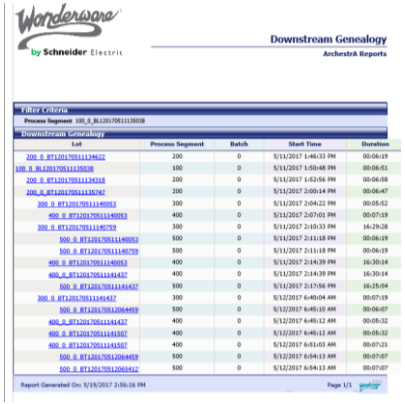


# Traceability

(01) 08901171232121
(10) BATCHPT
(17) 12/2016
(21) OL6NTALM17B7




## Genealogy

## Batch/Lot Details

**Production Request(s)**

| Production Request | Start Time | End Time | Duration |
|---|---|---|---|
| BL120170511135038 | 5/11/2017 1:50:48 PM | 5/11/2017 1:57:39 PM | 00:06:51 |

**Material(s) Produced**

| Material | Quantity | Lot | Location |
|---|---|---|---|
| BL-000001 | 0.84 Gallons | 100_0_BL120170511135038 | Scrap_Yard |
| BL-000001 | 280.00 Gallons | 100_0_BL120170511135038 | WIPTank_001 |

**Material(s) Consumed**

| Material | Quantity | Lot | Location |
|---|---|---|---|
| 00000000 | 224.00 Gallons | WaLot-051117063609 | Raw Materials |
| 17106000 | 5.60 Gallons | ReLot-051117063512 | Raw Materials |
| 17114000 | 19.60 Gallons | WhLot-051117063513 | Raw Materials |
| 20401000 | 0.08 Gallons | AsLot-051117063515 | Raw Materials |
| 20402000 | 0.14 Gallons | FuLot-051117063516 | Raw Materials |
| 20672000 | 1.68 Gallons | CrLot-051117063519 | Raw Materials |
| 22751001 | 1.40 Gallons | PoLot-051117063521 | Raw Materials |
| 60415000 | 11.20 Gallons | ApLot-051117063522 | Raw Materials |
| 99152000 | 5.60 Gallons | PLot-051117063523 | Raw Materials |

**Equipment Utilized**

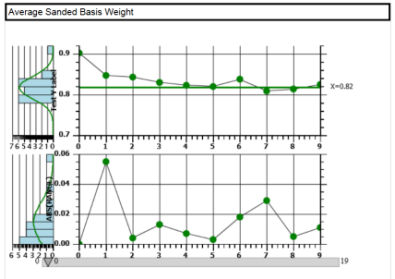
| Equipment | Start Time | End Time | Duration |
|---|---|---|---|
| Blender_001 | 5/11/2017 1:50:48 PM | 5/11/2017 1:57:39 PM | 00:06:51 |

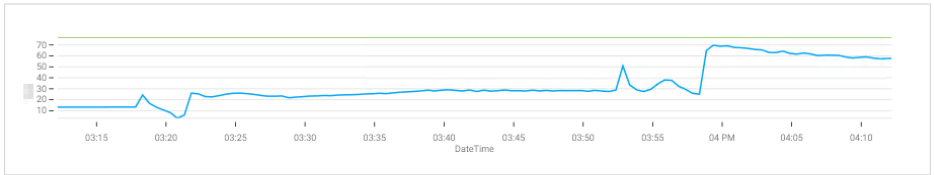
**Equipment Downtimes**

| Reason | Duration | Comments |
|---|---|---|
| Mixer Noise | 00:00:27 | |
| Cleanup | 00:01:00 | |
| Cleanup | 00:00:30 | |

**Equipment Performance**

| Equipment | Utilization | Performance | Quality | OEE |
|---|---|---|---|---|
| Blender_001 | 71.39 | 41.08 | 99.7 | 29.24 |




## Quality and Process Characteristics

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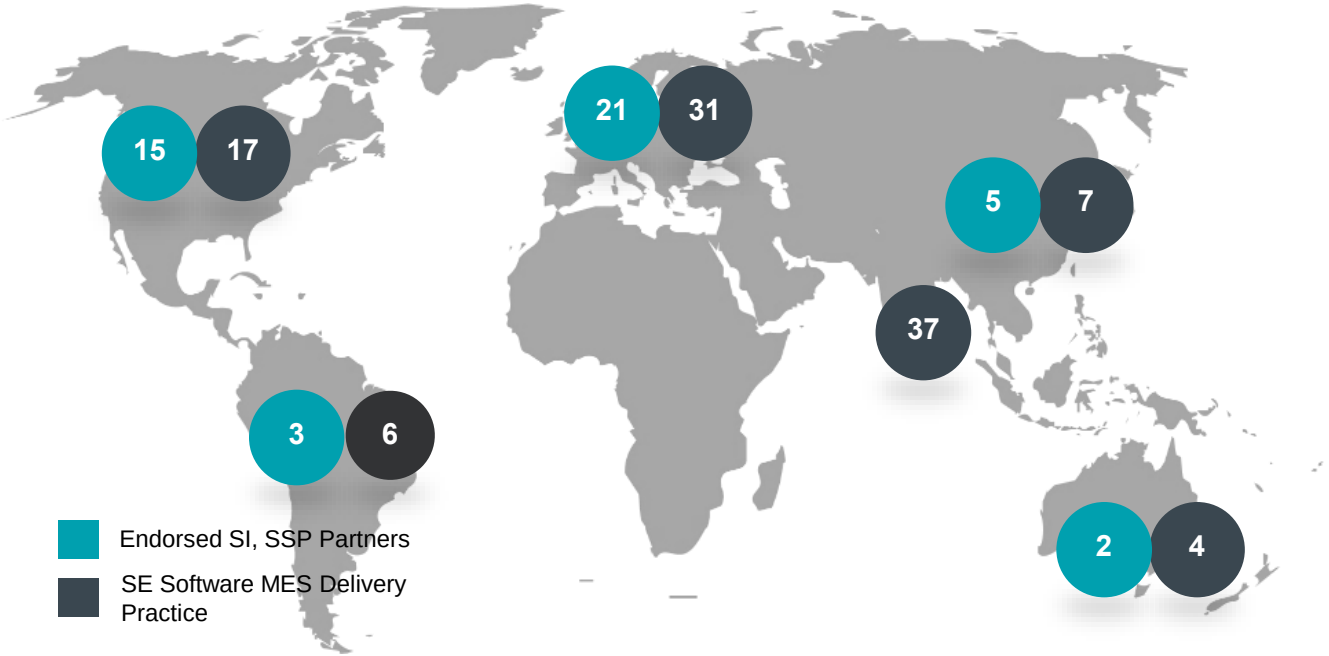
# Global Delivery, Support and Partner Network




## Full Services Ecosystem Stats

**870+**
Delivery Professionals

**150+**
Support Professionals

**200+**
Training Offerings

**3900+**
Ecosystem Partners (SIs)

**160+**
Technology Partners

A global delivery and support organization, teamed with the worlds largest network of partner systems integrators

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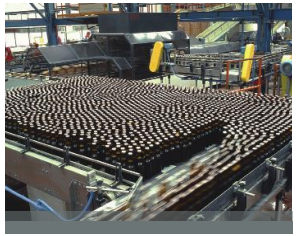
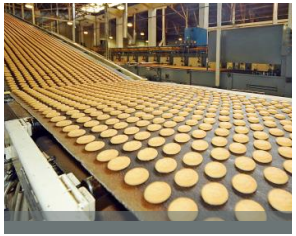
# We deliver Smart solutions to key sub-segments

## From farm to fork, we help improve traceability, sustainability and efficiency of F&B operations.

### Dairy:
Seize new market and profit opportunities thanks to zero waste and 100% traceable production.

### Beverages and Brewing:
Increase delivery reliability for superior quality products with best-in-class productivity and environmental leadership.

### Baked Goods and Confectionery:
Deliver your brand promise, manage high product variety and perfect quality while tracking accurate materials genealogy.

### Grain, Cereals, and Ingredients:
Increase production capacity with reduced staff and energy while accurately controlling the material flows in the entire process.

### Sugar, Oil, and Biofuels:
Increase production throughput, efficiency, and safety by providing operation teams with the best information.

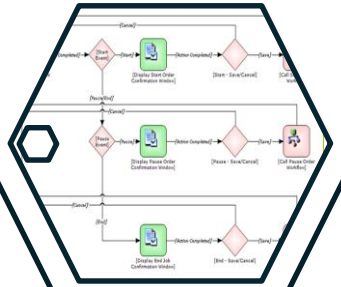
### Why Food and Beverage customers choose Wonderware Software and Schneider Electric
As the global specialist for energy management and the leader in Food and Beverage manufacturing operation management, we make sustainable efficiency for Food and Beverage a reality today.

Wonderware by Schneider Electric

Life Is On Schneider Electric

# Key Differentiators

Easy to use graphical tools for defining manufacturing processes and workflows



Libraries of industry solutions, best practices and workflows

Global program management, support and System Integrator network

World leading connectivity to plant floor devices and automation equipment

Industry leading supplier with domain expertise and experience

Wonderware System Platform

Food & Beverage

Life Sciences

Specialty Chem.

# QUESTIONS

# THANK YOU!