ISA

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Food Safety
Five Steps to Digitize and Improve Your Food Safety Program

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Presenter

- Joe Whyte is a 26 year LifeSciences & CPG Industry sales professional. Career highlights include regional, national and global sales and sales management roles, and periods as a digital automation technology entrepreneur. Technical expertise includes machine and process automation, robotics, packaging, vision, IT, data management, information systems, plant and supply chain optimization

- Joe joined Rockwell Automation in 2006 and is currently the company's Global Serialization Lead. His background at Rockwell Automation includes Strategic LifeSciences OEM Sales and Global Strategic LifeSciences Account Management.

- The Connected Enterprise Puts the Industrial Internet of Things to Work for You. It helps operations managers profitably manage and improve manufacturing and industrial processes. It helps IT executives reduce network complexities and exposure to information security risks. It shares productivity-improving information to workers across the organization in a context that is meaningful for each role.

- Accelerated by the emergence of the Industrial Internet of Things and advances in enabling technologies – including data analytics, remote monitoring and mobility – The Connected Enterprise opens new worlds of opportunity through greater connectivity and information sharing.

Rockwell Automation

Agenda

Industry Trends

Five Steps to Improve Your Food Safety Program

Conclusion

Internet of Things vs. Industrial Internet of Things

Condition Monitoring | Drive System | Servo Systems | Safety Systems | Discrete Control | Robot System | Process Control | Energy Management | Batch Systems

TRENDS

<14 %
of US manufacturers have tied their machines to the enterprise network

SOURCE: Industry Week

21%
of manufacturers have suffered a loss of IP in the past year

SOURCE: Kapersky (2014)

2 Exabytes
of big data generated by manufacturing – more than any other sector

SOURCE: McKinsey

$20B
cost of unscheduled downtime

SOURCE: ARC

Nearly 3/4
of U.S. plants are more than 20 years old

SOURCE: Industry Week

$65B
The global installed base of legacy automation systems reaching the end of their useful life

SOURCE: ARC

TRENDS

Food Safety Modernization Act

Are You Ready?

48 MILLION[*]

People are affected by contaminated food

128,000[*]
Hospitalized

3,000[*]
Deaths

20-30%[**]
Seek Legal Action

78% Of companies have experienced 1-4 health/safety recalls in the last 5 years

TRENDS

Food Safety Modernization Act

The Impact

REDUCING FOODBORNE ILLNESS BY 1%

500,000 LESS PEOPLE WILL GET SICK*

*Source: *The New Yorker 2015, **Food Safety News 2015, ***Capturing Recall Costs, GMA 2011*

77% of respondents estimated the financial impact of a recall to be **up to $30 million dollars;** 23% reported even higher costs.

Less than $9M
$10M to $29M
$30M to $49M
$50M to $99M
Over $100M

Today's Food Safety Programs

- Nothing new - HACCP invented 30 years ago
- Paper-based / spreadsheet
- Snap-shots in time
- Difficult to track or trace products

FOOD SAFETY TRENDS

Reliance on Global Supply Chain

Science Connects Illness with Foods More Than Ever

Consumers Expect Quality at Low Price with Zero Risk

Evolving Regulatory Requirements

Digitally Empowered Consumers

LIKE

AUTHENTIC

POST

SHARE

Amplified by social media.

Where are we headed?

- Real-time information regarding raw material conditions and production processes
  - *How well do you understand the variables in the heating, cooling, weighing and filling processes that can impact your products' safety and quality?*
  - *What visibility do you have of the supply chains, where your raw materials originate and finished products are sent?*
- Move from reactive to proactive approach
- Ease record keep and traceability – improve product tracking
- Labeling issues – especially for allergens

Increase consumer confidence / meet regulatory demands / improve operational efficiency

DIGITIZE & CONNECT YOUR FOOD SAFETY PROGRAM

1 Get connected

2 Secure your networks

3 Employ a risk-based preventative program

4 Implement product traceability

5 Improve operational efficiency

1 **Get Connected**

- **Converge** your operations technology (**OT**) and information technology (**IT**) systems into a single unified network architecture

- **Leverage** enabling technologies, such as **mobile** platforms, **cloud computing** and **Ethernet**

Connected Enterprise

- The Industrial IoT at work for Industrial Applications

DATA ANALYTICS

CLOUD & VIRTUALIZATION

MOBILITY

Contextualizing and analyzing data

Smart devices create more **'things'** to be analyzed

Reliability, support, and disaster recovery

Shift from CapEx to **Flexible & Scalable** OpEx

Access to actionable information

Workforce is **Mobile** during typical work day

2 **Secure Your Network**

- Network security **directly impacts** food safety and quality

- **Data breaches** can occur by way of sophisticated cyber attacks or something as simple as an unguarded industrial computer port. quality

One of the most fundamental principles of information security is that of "defense in depth"

– *the idea that threats are mitigated by a number of complementary measures, meaning that a threat can still be countered even when individual measures fail. [1]*

Source: *Improving EU Cyber Security Through Better Community Building, Security Europe, 2014*

Employ a Risk-Based Preventative Program

- **Real-time monitoring** of critical control points in your HAACCP Plan

- **Data trending** and statistical process Control Corrective action logs

- **Records management** and verification

The USDA issued recalls for more than 18.6 million pounds of meat and egg foods in 2014. Undeclared allergens were by far the leading cause of recalls, accounting for nearly 45% of the USDA's 94 recalls issued.

Source: United States Department of Agriculture, Food Safety and
Inspection Service Summary of Recall Cases, Calendar Year 2014

Global Food Company – FSMA Compliance

CHALLENGE

- **Verify process parameters are in control**
- **Monitor Critical Control Points:**
  - **Cooking (CCP)**
  - **Chilling/Freezing (CCP)**
  - **Frying**
  - **Clean in Place systems**
- **Track and trace products through supply chain**

CUSTOMER SUCCESS

RESULTS

TRACE PRODUCT FROM PACKAGING BACK TO EARLIER PROCESSES
- Reduced products placed on QA hold
- FSMA compliance

PACKAGING VERIFICATION
- Meet allergen and nutritional packaging requirements

PRODUCT TRACKING
Print on demand case label 2D bar code
- *Case serial #*
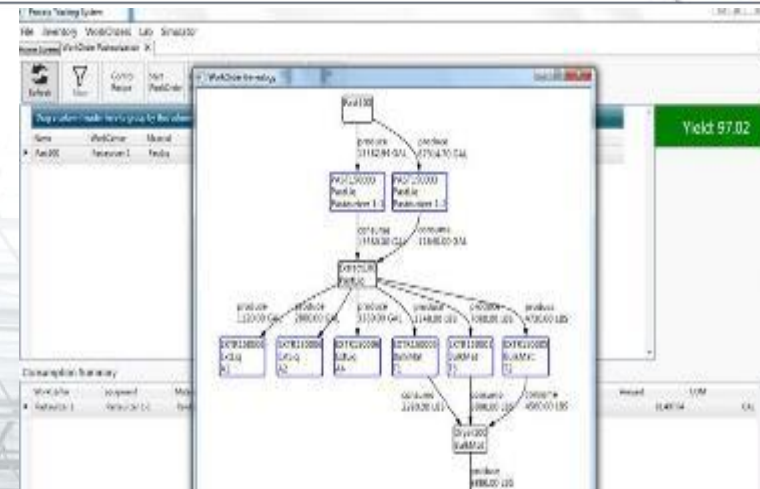- *Line #*
- *Date/Time*
- *SKU*
- *Weight*

Implement Product Traceability

- **Risk-based preventive**
controls program provides
  - Increased safety
  - More efficient recall process

- Leverage an **out-of-the-box system** that can be easily integrated into your lines.

"You have to show that you have very, very robust quality systems in place, and you have to show that there is a link between your manufacturer, the brand that you're packing, and the importer in China as well, so you have full traceability."

General Manager, Dairy Company
Source: Chinese infant formula registration 'very intense,' ABC, June 5, 2014

Track and Trace Solutions

- Material Receiving
- Material Inventory Management
- Material Tracking & Traceability
- Product Genealogy
- Material Dispositioning & Sampling
- Data Collection at Process Areas
- Real-Time Yield Analysis
- Production, Genealogy, Traceability & Yield Reporting
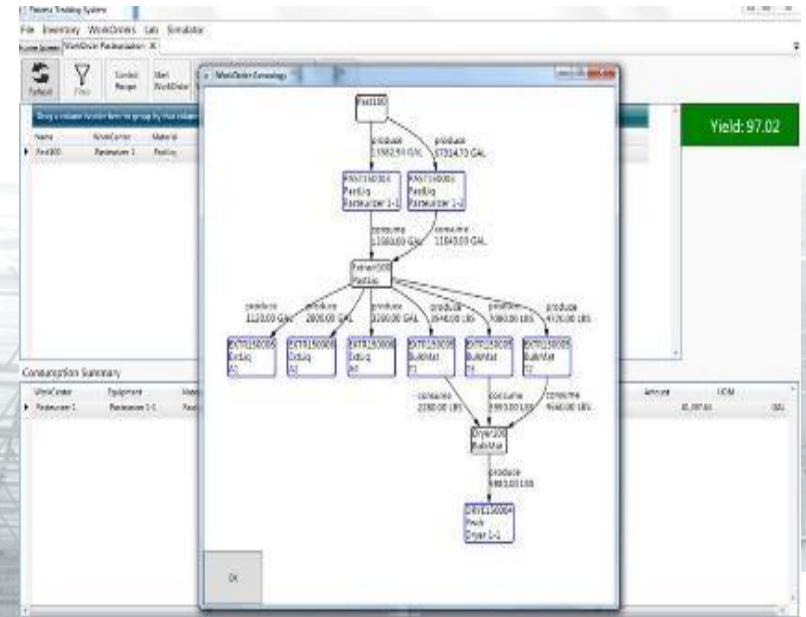
Food Safety - Monitoring & Reporting

- Monitor critical control points
- Verify process parameters
- Provide quality reporting
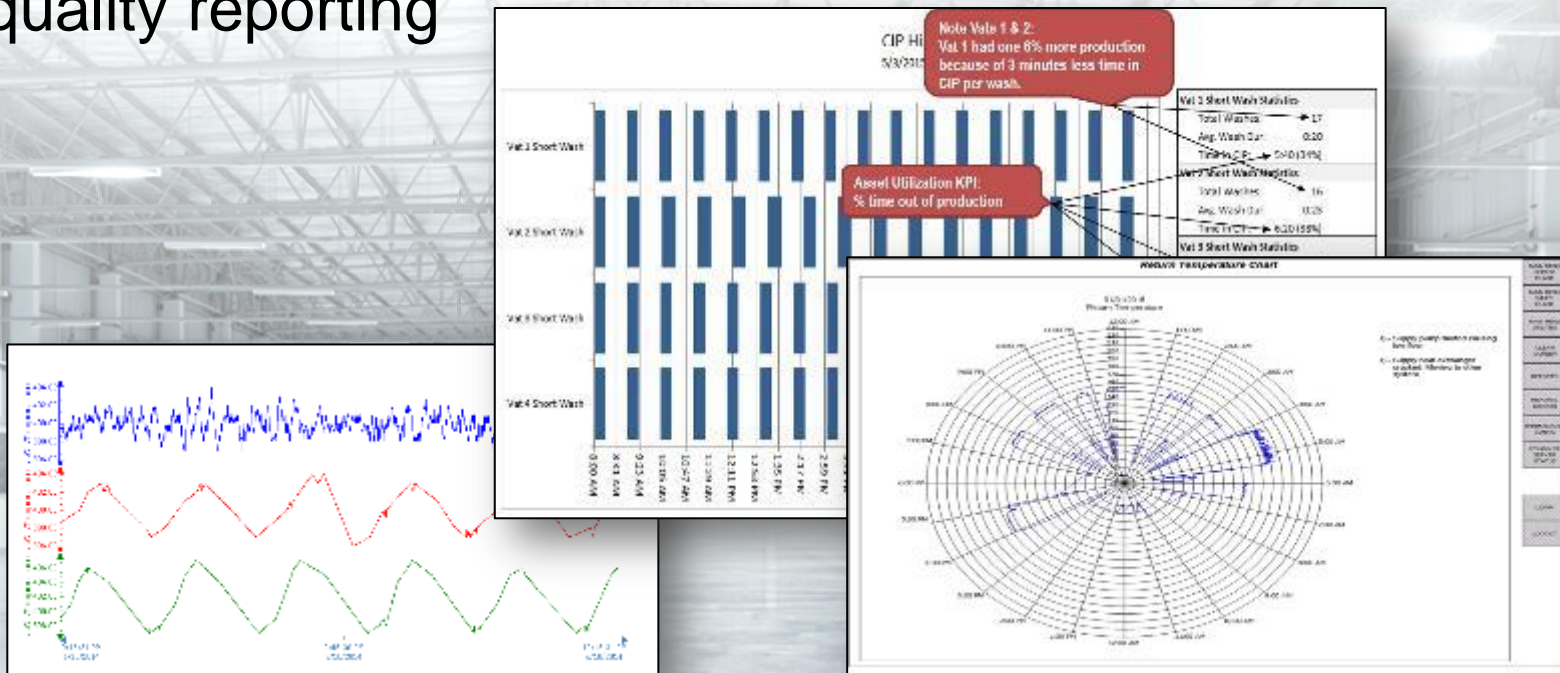
Critical Control Point Recording Examples

5 **Improve Operational Efficiency**

- Apply **metrics applications** and **data-rich dashboards**

- Enable **predictable batch** processing, consistency between batches and event-based information

- Implement **configurable** line-control solutions

Global Food Company – FSMA Compliance

CHALLENGE

- **Reduce revenue losses due to package weight variances**

- **Meet Federal Meat Inspection Act packaging requirements**

CUSTOMER SUCCESS

RESULTS

- **CUT WASTE, IMPROVED YIELD**
  10% yield improvement

- **ACCESS OPERATING DATA**
  Control weight fluctuations, real-time
  Meet Federal Meat Inspection Act requirements

- **PAYBACK / ROI**
  12-months

Results

*Most Advanced Track & Trace System in
all of China for Baby Formula.*

- China Food Drug Administration (CFDA)

⬆ **3%** Productivity Increase

Reduced production prep/dispatch time

Speeds up delivery, auto-fill BOM

⬇ **7%** Labor Costs

Conclusion

- How prepared is your operation to **prevent or identify safety and quality issues** before they reach consumers?

- Are you prepared to respond to the **real-time demands** of your customers?

1 Get connected

2 Secure your networks

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Questions?

Visit

http://www.rockwellautomation.com/global/industries/food/overview.page

to learn more