Transforming Your Warehouse 4.0 Business with The Smart Connected Warehouse

Dominic Regan
Senior Director, EMEA Applications
2 October 2018
Safe Harbor Statement

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Warehouse 4.0 – the Digital Warehouse Revolution

“The Warehouse 4.0: The Industrial And Digital Worlds Are Converging, Not Colliding.”

– GE 2016, John G. Rice, Vice Chairman of GE and President and CEO of GE Global Growth Organization
Warehouse Activities are Experiencing Considerable Disruption

• **Consumer demand volatility** is changing warehouses processes.

• **Market competition** is constantly putting pressure on Executive decisions.

• **New digital business models** are disrupting distribution and logistic channels.

• **We are only at the beginning** of the 4th industrial revolution and warehouse revolution.
Next Gen of Warehouse Operational Technologies will be Digital Native

• Inventory Drones, Collaborative robots, AGVs, Extended humans... must be connected

• Humans and machines have to work in partnership

• Digital Equipment must be secure and enterprise grade by design

• Artificial Intelligence will run and predict complex operations and space allocations.

• Innovations will come from data and digital improvement
Constant Innovation is the Heart of Success

• Digital twin data connects the digital and the physical worlds for faster innovation
• Next best action AI helps to tackle human and machine errors
• Open collaboration with partners helps Innovation
• Data transparency helps decision making
Did You Know?

“With Cloud WMS, we achieved a throughput increase of 81% while variable cost per unit shrunk by 50.”
Did You Know?

“With $22 million in fulfillment expenses saved per warehouse automated, fully automating all its remaining distribution centers could save the company $2.5 billion.”
Did You Know?

“If many ‘dumb’ robots could share one large ‘smart’ computer, each taking turns at thinking only when needed, we could lower the cost of each robot while greatly increasing its capability”

- Matthias Heutger Senior Vice President Strategy, Marketing & Innovation; Deutsche Post DHL Group
Existing on Premise Systems Alone and are not Enough to Drive Improvements and Implement New Business Models

- No smart context-resolution & predictive analytics capabilities
- No vertical & horizontal integration to provide data transparency
- No open connectivity & mobility for new sensors, use new usages
- No cloud, AI, Big Data analytics for 360° analysis
The Warehouse World is a Connected World
What if You Could…

• What if you can **improve your warehouse efficiencies and product quality**?
• What if you can **get quickly value from IOT & AI in your operations, predictive maintenance and quality**?
• What if you could have a clear roadmap on **predictive maintenance and predictive efficiency analysis**?
• What if you can improve the **transparency of your warehouses**?
• What if you **can identify and manage risks** associated with rolling out innovations?
Oracle Smart Connected Warehouse Brings the Power of Digitization within the Four Walls of Your Warehouses

- KNOW
  - Predictive Warehouse Performance Monitoring
    - Drives us to monitor 360° view of operations

- PREDICT
  - Predictive Warehouse Equipment Failure
    - Correlate data from multiple equipment to activate preventive actions

- SAFE
  - Predictive Worker Safety Monitoring
    - Monitor worker’s safety and actions taken when there is a deviation from normal behavior

- QUALITY
  - Quality Monitoring
    - Correlate quality information from several steps of products storage and manipulations
Smart Connected Warehouse
Day in the life of the team at Vision Warehouse

Frank Eagen
Warehouse Supervisor

Robert Mendoza
Worker

Max Linder
Warehouse Supervisor

Olivier Martinez
Warehouse Manager

Warehouse Management → Real-Time Monitoring of Warehouse Assets & Maintenance → Inspection and Quality Monitoring → Worker Safety Monitoring
Predictive Warehouse Performance Monitoring

Provides a step-by-step global and local transparency of your warehouses KPIs.

- One 360° view of yield / efficiency, and equipment behaviors.
- Monitor orders, shipments, and inventory on a single SCM cloud-based platform.
- Leverage IOT, predictive AI and cloud supply chain.

Email / Excel Reporting
Static Analytics

Transparency
Real-Time
Virtual World
Predictive Warehouse Performance Monitoring
Craftsy is a top online destination for passionate makers to learn, create and share, and has more than 10 million registered members from over 180 countries.

**CUSTOMER PERSPECTIVE**

We selected Oracle WMS Cloud because of the functionality that it offers, which is in a ready-to-go format that we were able to open our fulfillment center a month early than planned. Since launch we’ve seen building throughout increase 81%, and variable cost per unit shrink by 50%.

– Brady Johnson, eCommerce Manager, Craftsy
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Warehouse Management → Real-Time Monitoring of Warehouse Assets & Maintenance → Inspection and Quality Monitoring → Worker Safety Monitoring
Predictive Warehouse Equipment Failure

Predictive Alerts and next best action:

- Anticipate potential yield drop.
- Optimize your maintenance scheduling, downtime costs and spare parts purchasing.
- Interact remotely with AGVs to avoid operation downtime.
Predictive Warehouse Equipment Failure
Mitsubishi Electric & Mirage AGVs are Triggering the Warehouse 4.0

Mitsubishi is connected to oracle IOT to run the e-factory solution

Automation solutions for manufacturer requirements to boost productivity

Mitsubishi Electric operate 237 factories and laboratories worldwide over 121 countries

CUSTOMER PERSPECTIVE

Mitsubishi Electric’s solutions for Edge Computing Integrated with Mirage AGVs are connected to Cloud Computing and help businesses who are looking to reap the benefits of the Internet of Things (IoT). The Edge Computing solutions are built on local control platforms to provide filtering and pre-processing of production data from intelligent devices.
### Demo: Predictive Warehouse Equipment Failure

#### Scenario A

1. **Incident Creation**
   - **Roles**: IoT AM, Java CS
   - **Legend**: 
     - Cloud Products only
     - Mobile Enabled UI
     - Tablet Enabled UI
   - **Oracle Capabilities**: 
     - Monitor Remote Assets continuously
     - Automatic Incident Management
     - Drive Predictive Maintenance
   - **Products**: 
     - Oracle Warehouse Management Cloud (WMC - Logfire)
     - Oracle Integration Cloud Service (ICS)

2. **Review Incident and Replace Asset**
   - **Roles**: IoT AM, Java CS
   - **Legend**: 
     - System Automated
     - Warehouse Manager
     - Warehouse Supervisor
   - **Oracle Capabilities**: 
     - Complete Visibility and Control for Contact Center Agent
     - Task Management
   - **Products**: 
     - Oracle IoT Asset Monitoring Cloud Service (IoT AM)

3. **Update Task**
   - **Roles**: IoT AM
   - **Legend**: 
     - Update WMS task with the active asset
   - **Oracle Capabilities**: 
     - 
   - **Products**: 
     - Oracle Warehouse Management Cloud (WMC - Logfire)

4. **Incident Resolution**
   - **Roles**: IoT AM
   - **Legend**: 
     - IoT AM - Logfire
   - **Oracle Capabilities**: 
     - 
   - **Products**: 
     - Oracle Integration Cloud Service (ICS)

#### Scenario B

1. **Incident Creation**
   - **Roles**: IoT AM, Java CS
   - **Legend**: 
     - Cloud Products only
     - Mobile Enabled UI
     - Tablet Enabled UI
   - **Oracle Capabilities**: 
     - 
   - **Products**: 
     - Oracle Warehouse Management Cloud (WMC - Logfire)

2. **Review Incident and KPIs**
   - **Roles**: IoT AM
   - **Legend**: 
     - IoT AM - Logfire
   - **Oracle Capabilities**: 
     - 
   - **Products**: 
     - Oracle Integration Cloud Service (ICS)

3. **Raise Maintenance WO**
   - **Roles**: IoT AM, Java CS
   - **Legend**: 
     - Update WMS task with the active asset
   - **Oracle Capabilities**: 
     - 
   - **Products**: 
     - Oracle Warehouse Management Cloud (WMC - Logfire)

4. **Incident Update and Corrective Action**
   - **Roles**: IoT AM
   - **Legend**: 
     - IoT AM - Logfire
   - **Oracle Capabilities**: 
     - 
   - **Products**: 
     - Oracle Integration Cloud Service (ICS)
Smart Connected Warehouse
Day in the life of the team at Vision Warehouse

- Frank Eagen: Warehouse Supervisor
- Robert Mendoza: Worker
- Max Linder: Warehouse Supervisor
- Olivier Martinez: Warehouse Manager

Warehouse Management → Real-Time Monitoring of Warehouse Assets & Maintenance → Inspection and Quality Monitoring → Worker Safety Monitoring
Quality Inspection Monitoring and Training

- Quality based predictive Alerts.
- Corrective action automation.
- Quality plan adaptation to avoid massive quality issue and recalls.
- Use field and engineering data to learn and provide best practices training.
Quality Monitoring and Training
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Predictive Worker Safety Monitoring

Monitor worker’s safety and actions taken when there is a deviation from normal behavior.

• Next best action based on worker abnormal behaviors.

• Apply safety and healthy regulations in cold, warm and dangerous environments.

• Prevent dangerous situation by remotely alerting humans about risks.
Predictive Worker Safety Monitoring
Gas and Electricity transport and facility management

Stedin Ensures Employee Safety with mobile Application

Track the time engineers spend inside electricity stations to protect their health and ensure their safety

Monitor
1,100 employees safety serving 2.2 million customers

CUSTOMER PERSPECTIVE
Oracle enabled us to reduce telecommunications and payroll costs in the operations and support center—while maintaining the same levels of customer service quality and employee safety standards—at just a fraction of the deployment time and cost that other suppliers were proposing.
Oracle Industrial Partners Ecosystem

SI Partners

Connected Worker
Smart Factory, Facilities Mgmt.

Fleet Management
Smart Service Utilities

Connected Car
Asset Management

Digital Field Service

Asset Tracking

Asset Monitoring, IIC Test Bed

Fleet Management

Remote Equipment Monitoring

Smart Factory

Industrial Connectivity

Smart Factory

Building / Industrial Connectivity

Smart Logistics

Real-time OS & Device Management

OPC UA Industrial Connectivity

Building / Industrial Connectivity

Industrial Gateways

Industrial Gateways

Industrial Gateways and Sensors

Industrial Automation

Industrial Automation

IoT OS & Device Management

IoT Security

Smart City Gateway

Wireless Connectivity

Device and Technology Partners

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Take the Next Step Forward

- Oracle Smart Connected Warehouse offers the only proven, complete and integrated cloud solution to align Warehouse Technologies with IT Data driven technology.

- Easy integration with business applications helps to reduce costs and downtime.

- Make all your data easily correlated and actionable is the key success factor for innovation and continuous improvement.
Integrated Cloud
Applications & Platform Services