Mobile Technology and Machine Learning Tools for Supply Chain, Distribution and Production Management

Presented by:
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Debbie Baldwin is a Senior Product Manager at Acumatica.

In this role, she draws upon over 32 years of industry experience to ensure that Acumatica meets the needs of internal and external stakeholders. She has been working in the software industry for 17 years and has both implemented and managed various software packages.

Prior to this, Ms. Baldwin spent 15 years in Manufacturing working as an ERP User and Project Manager. Her other responsibilities varied from Application Support Specialist, Cost Accountant, Industrial Engineer, and Controller.
Agenda

Digital Transformation
  • Industry 4.0
  • Industry 5.0

Current Industry Dynamics

Mobile

Artificial Intelligence (AI) and Machine Learning
# Industry 1.0 to 4.0

## INDUSTRY 1.0
Mechanization, steam power, weaving loom

## INDUSTRY 2.0
Mass production, assembly line, electrical energy

## INDUSTRY 3.0
Automation, computers and electronics

## INDUSTRY 4.0
Cyber Physical Systems, internet of things, networks
Industry 5.0 will focus on the cooperation between man and machine, as human intelligence works in harmony with cognitive computing.

By putting humans back into industrial production with collaborative robots, workers will be upskilled to provide value-added tasks in production, leading to mass customization and personalization for customers.

**Disruptions:**

- Personalized human touch
- Manufacturing competitiveness
- Collaborative robots
- Customized customer satisfaction
Digital Transformation...

... is the change associated with the application of digital technology in all aspects of human society.
Digital Transformation is Key to Competitiveness

Apiumhub
## Current Industry Dynamics

<table>
<thead>
<tr>
<th></th>
<th>Shifts in buyer behavior</th>
<th>Operating complexity &amp; costs</th>
<th>Service innovation</th>
<th>Complex supply chain</th>
<th>Project &amp; customer profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Customer rejection of high capital cost purchases</td>
<td>Low volume, engineer to order products</td>
<td>Products to services model shift</td>
<td>Orchestrating production across co-manufacturers</td>
<td>Unprofitable projects</td>
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<td>Introduction of smart equipment</td>
<td>Design for ‘circular’ economy &amp; remanufacture</td>
<td>Profitability of service business</td>
<td>Supplier visibility &amp; collaboration</td>
<td>Inaccurate job costing and estimating</td>
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<td>Increasing personalization</td>
<td>Visibility of global operations</td>
<td>Employee recruitment, training &amp; productivity</td>
<td>High MRO inventory / stock-write-offs</td>
<td>Managing regulatory, quality, environmental, and safety concerns</td>
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<td>New charging models</td>
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<td>Custom products built to specification</td>
<td>Business model transition from products to services to outcomes</td>
<td>Insight to machine data &amp; usage for enhanced R&amp;D and service optimization</td>
<td>Involvement in every step from design to delivery</td>
<td>Enable employees &amp; service engineers to work productively – AI, XR, mobile</td>
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</tbody>
</table>
Top Priorities for Manufacturing Executives

- **73%** Mobile
- **72%** Cybersecurity
- **73%** DC and Analysis

Bridgr Insights
“Mobile Devices in Factories: An Important Competitive Advantage” – 2018
Mobile Devices Everywhere

CEOs prioritizing the strategic importance of mobile technologies are driving a revolution in manufacturing today…

… Mobility is forcing manufacturers to compete in their prospects’ and customers’ timeframes while delivering greater value in less time than before.

Revolutionizing Manufacturing with Mobility:

- Generate quotes for build-to-order products
- Improving Supplier Traceability and Quality
- Enterprise-wide mobile inventory tracking
- Reduce Field Service call cancellations and delays

- Louis Columbus
3 Main Objectives

### Paperless
- Reduce Manual Errors
- Real-Time Information
- Track & Trace

### Agility
- Adapt to Changing needs of Customers as well as Market Trends
- Lean Manufacturing
- Purpose Built by Role

### Improve Operations
- Reduce Costs
- Improve Quality
- Aftermarket Service
End to End

Inbound
- Receiving
- Putaway
- Location to Location
- Material Issue
- Cycle/Physical Inventory

Outbound
- Pick, Pack, Ship
- Containers
- Transfers

Production
- Labor
- Production Reporting
- Attendance
- Quality Reporting
Expense Reporting
AI/Machine Learning
What does it mean?

“Machine learning makes it possible to discover patterns in supply chain data by relying on algorithms that quickly pinpoint the most influential factors to a supply networks’ success, while constantly learning in the process.”

Forbes
“10 Ways Machine Learning is Revolutionizing Supply Chain Management” – 2018
Challenges for Adoption

- We don’t understand it
- Human Bias
- We don’t Trust it
- Need a Large Amount of Data
**How is Machine Learning the Revolutionizing Supply Chain?**

<table>
<thead>
<tr>
<th>Improved Forecasting</th>
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<tbody>
<tr>
<td>Reduced Freight Costs, Improved Supplier Delivery, Less Supplier Risk</td>
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<tr>
<td>Lower inventory costs</td>
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<td>Quicker response time to customers</td>
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<td>Extended life of machines, engines, transportation and warehouse equipment</td>
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<tr>
<td>Improved Production Planning and Scheduling</td>
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Image Recognition
Mixed Reality
What’s Next?

More Manufacturers will start to embrace this technology!

Greater Connectivity
- Real time information
- Inside the Four Walls
- Scheduling and Optimization of Shop Floor
- Outside the Four Walls
- Real time feedback from products out in the field

Lights Out Manufacturing?

Reduced Cost
- No need to heat or cool shop floor
- No need for lights
Manufacturers are known to be slow adopters of technology, and many may resist making new investments. In the words of Henry Ford: “If you always do what you always did, you’ll always get what you always got.”

CB Insights
“Future Factory: How Technology is Transforming Manufacturing” – 2019
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