Reconfiguring

Transforming Manufacturing Operations In The Digital Age

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93% of manufacturers claim manufacturing operations are an integral component of their digital supply chain strategies.
71% of manufacturing digitization efforts are separate but parallel to digital supply chain initiatives.
Leadership Is Promoting A Digital Strategy

Q: What are the most important manufacturing-centric objectives for your company in the next 12 months?

- Reducing costs: 38%
- Improving quality: 35%
- Digitization of production processes: 31%
- Understanding the benefits and opportunities of new technologies: 27%
- Accelerating the implementation of new processes in/across sites: 25%
- Improving skills and talent: 21%
- Deploying standard best practices and performance measures: 20%
- Increase visibility of supply chain performance: 19%

Base: All Respondents, n = 205
Percentage of Respondents Sum of Top 3 Rank Shown
Percentages may not add to Sum due to rounding

Source: Manufacturing Operations Trends From the 2018 Supply Chain Top 25, Gartner 2018
Smart Manufacturing is a mindset shift and a change to existing organizational culture.
Can You Change the Wheels on a Moving Bus?
1. Reestablish The Core
2. Disrupt How Outcomes Are Approached
3. Automate Beyond The Factory
4. Unlearn and Hack Your Culture
Separate Logic And Emotion
The Hype Cycle: Balancing Innovation and Core Competency

Emerging Practices
- IoT
- AR/VR
- Cloud
- AI
- Digital Twin
- Digital Thread
- Smart Robots
- Cyber Physical Systems
- Mobile Factories

Peak of Inflated Expectations

Innovation Trigger

Trough of Disillusionment

Plateau of Productivity
- Corporate Production Systems
- Synchronized BOMs
- Network Design
- OEE
- Security
- Digital Manufacturing
- Supplier Quality

Mainstream Adoption

Time

Source: “Hype Cycle for Manufacturing Operations Strategy, 2018”, Gartner 2018
Renovate The Foundation

Governance

People

Processes

Technology

Data

Performance
1. Reestablish The Core
2. Disrupt How Outcomes Are Approached
3. Automate Beyond The Factory
4. Unlearn and Hack Your Culture
“There’s Gold In Those Plants”

**Desired Outcomes**
- Visibility
- New Markets and Segments
- Agility
- Cost Optimization
- Synchronized Supply
- Network Design and Optimization
- Complexity Management
- Sustainability
- Traceability and Compliance

**Where Will the Goal Be Achieved?**
- End-to-End Supply Network
- Region/Business Unit
- Site Level
- Line/Work Cell/Production Unit

**What to Invest In?**
- Skills/Talent
- Digitization
- Automation
- Cloud
- Flexibility
- Analytics

**What Information Is Needed?**

*Source: More Than Digital Is Driving the Factory of the Future, Gartner 2017*
What Can Be Achieved

Faster, Accurate Decisions

Digitized Production System

Improve Material Yield
1. Reestablish The Core
2. Disrupt How Outcomes Are Approached
3. Automate Beyond The Factory
4. Unlearn and Hack Your Culture
Manufacturing Processes/Activities That Are Completely Digitally Automated

<table>
<thead>
<tr>
<th>Process/Activity</th>
<th>Two years from now</th>
<th>Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting/KPI Management</td>
<td>40%</td>
<td>37%</td>
</tr>
<tr>
<td>Materials Logistics</td>
<td>34%</td>
<td>41%</td>
</tr>
<tr>
<td>Production Planning</td>
<td>32%</td>
<td>43%</td>
</tr>
<tr>
<td>Incoming Inspection</td>
<td>22%</td>
<td>34%</td>
</tr>
<tr>
<td>In-process QA/QC</td>
<td>32%</td>
<td>43%</td>
</tr>
<tr>
<td>Product Release</td>
<td>36%</td>
<td>46%</td>
</tr>
<tr>
<td>Changeovers</td>
<td>24%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Base: All Respondents, n = 205, excludes don’t knows
Which of the following manufacturing process/activity are completely digitally automated today and which will be two years from now?.
Cross Functional Alignment Must Be Identified

1. Reestablish The Core
2. Disrupt How Outcomes Are Approached
3. Automate Beyond The Factory
4. Unlearn and Hack Your Culture
Develop Digital Dexterity

New Competencies

Nurture Natural Interaction

Human Machine Collaboration

Learn Intelligently

Source: How to Overcome Three Obstacles to Accelerate Innovation in Manufacturing Operations With Bimodal Gartner, 2017
1. Reestablish The Core
2. Disrupt How Outcomes Are Approached
3. Automate Beyond The Factory
4. Unlearn and Hack Your Culture
You *Can* Change the Wheels on a Moving Bus!
Reconfiguring Manufacturing Operations In The Digital Age

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Recommended Gartner Research

- Harvest Value of Smart Manufacturing in the Supply Chain, Not the Factory
  Simon Jacobson (G00349159)

- Supply Chain Brief: Measuring Supply Chain Agility
  Debra Hofman (G00308505)

- Maverick* Research: Operate Your Business Like a Lego Set to Win in Disruptive Times
  Jennifer Loveland (G00333491)

- Understanding The 5 Stages of Gartner’s Maturity Model for Manufacturing Operations
  Simon Jacobson (G00294757)

- Toolkit: Self-Assess Your Manufacturing Operations Maturity
  Simon Jacobson (G00349158)
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