3 Keys to Sustainable Supply Chain Improvement

Supply Chain Management Institute (SCMI)

Mark Kosfeld & Jeff Turmel
Speakers

Jeff Turmel – Director, SCMI

• Leads and facilitates industry partnership to study and advance operations and supply chain management improvement concepts
• Highly-rated instructor in UWM Lubar School Executive MBA program
• Lean/Six Sigma Master Black Belt
• Numerous leadership/management roles in Operations, Quality, and Supply Chain

Mark Kosfeld – Associate Director, SCMI

• Engages with companies to implement supply chain projects
• Published in SupplyChainBrain, Modern Materials Handling, Inside Supply Management and University-Industry Engagement Advisor
• Management roles in Logistics, Domestic Transportation and International Transportation
Supply Chain Mgt Institute (SCMI)

Creating a **VIBRANT** Supply Chain-oriented Environment for Students & Partners

- Facilitate Knowledge-sharing
- Create Student–to–Partner Company connections
- Deliver High-Quality Supply Chain Education
Sustainable SCM Pyramid

- Visibility
- Agility
- Adaptability
Supply Chain VISIBILITY

Gather needed Supply Chain Data / Information
Supply Chain Visibility

**TACTICAL:** Driver’s view

**STRATEGIC:** Spotter’s view
Value Chain Visibility

The foundation of agility is visibility. Visibility enables you to know what is going on, figure out what should be the best actions, and orchestrate and mobilize the appropriate members of the value chain to act accordingly.

Prof. Hau Lee
Graduate School of Business
Stanford University

Sources: Gartner – “8 Technology Trends to Watch Now”
Cloudle – “Creating a Resilient Supply Chain”
Supply chain visibility goes well beyond answering, “Where’s my product?” What’s really important is getting alerts that say, "Wait a minute, the plan is not operating as you expected."

Frank Jones
Former Supply Chain Leader
Intel Corporation

Source: Cloudle – “Creating a Resilient Supply Chain”
Supply Chain Visibility Case

- Supply chain team members struggled to answer customer and business questions related to Orders
- Worked with IBM to “connect’ their vast Purchase Order (PO) data network
- Optimized processes by Networking all PO data together using PO number as “Reference”

Source: IBM Sterling
Supply Chain Visibility Case

- Began comprehensive “Digitalization” strategy in 2012

- Working to develop **Digital Twins** for 11 major factories – virtually simulate appliance assembly and material movement routes

- “The factory is too expensive to use as an experimental field”

  Bernd Ebert, Director of Global Mfg Engineering

Source: Manufacturing & Logistics IT – March 2019
Still work to do in Supply Chain Visibility!

2020 Gartner Supply Chain Survey: “Do you use Digital Technologies to sense the need for, and take quick actions, for the following events?”

Source: 2020 Gartner Digital Supply Chain Decisions Survey
## Visibility Assessment Tool

1. **WHAT "Event" does our team need Visibility to see?**

2. **WHO needs Visibility?**

3. **WHO gives visibility?**

4. **HOW is visibility provided?**

5. **WHEN is visibility provided?**

6. **WHEN is visibility needed?**

7. **WHERE are our "blind spots"?**

8. **ACTION PLAN to address gaps**
# Visibility Assessment - Example

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. WHAT &quot;Event&quot; does out team need Visibility to see?</td>
<td>Vessel Arrival Dates</td>
</tr>
<tr>
<td>2. WHO needs Visibility?</td>
<td>Int’l Trans Director, Customs broker, Drayage company</td>
</tr>
<tr>
<td>4. HOW is visibility provided?</td>
<td>Specialist checks carrier websites each morning and updates the</td>
</tr>
<tr>
<td>5. WHEN is visibility provided?</td>
<td>Each morning by 10am.</td>
</tr>
<tr>
<td>3. WHO gives visibility?</td>
<td>Int’l Trans Specialist</td>
</tr>
<tr>
<td>6. WHEN is visibility needed?</td>
<td>Within 1 hour of vessel arrival.</td>
</tr>
<tr>
<td>7. WHERE are our &quot;blind spots&quot;?</td>
<td>1. Websites have delayed or incorrect info. 2. Vessels arriving after 10am not updated until the next day. 3. Backup Specialist less familiar the systems.</td>
</tr>
<tr>
<td>8. ACTION PLAN to address gaps</td>
<td>1. Investigate receiving vessel arrival dates via EDI from steamship lines. 2. Have Specialist provide afternoon update by 2pm. 3. Retrain backup Specialist.</td>
</tr>
</tbody>
</table>
Future Investments in Visibility

Through 2023, 50% of global product-centric enterprises will have invested in real-time transportation “Visibility” platforms ...

but less than 5% of control tower-like deployments will fulfill their end-to-end potential due to mindset and cultural obstacles ...

Source: Gartner – 5 Key Trends Transforming Supply Chains
Supply Chain Agility

- **Adaptability**
- **Agility**
- **Visibility**

Make Tactical Decisions & Adjustments

Gather supply chain data and information
“Data has to be turned into intelligence. We need the sensed signals to be analyzed, to deduce what was behind the observed signals and to evaluate actions that are required. In this way, sensing becomes actionable.”

Prof. Hau Lee
Graduate School of Business
Stanford University

Sources: Cloudle – “Creating a Resilient Supply Chain”
Supply Chain Agility

Supply chain “Agility” is achieved through the ability to:

- Quickly detect changes, opportunities, and threats (*Alertness*),
- Quickly access relevant data (*Accessibility*),
- Make resolute decisions about how to act (*Decisiveness*),
- Quickly implement those decisions (*Swiftness*), and
- Modify range of tactics / operations to implement strategy (*Flexibility*)

Source: David Gligor, “The 5 Dimensions of Supply Chain Agility” – CSCMP’s Supply Chain Quarterly, Oct 2015
Future Investments in Advanced Analytics

Through 2024, 50% of supply chain organizations will invest in applications that support Artificial Intelligence and Advanced Analytics capabilities ...

Source: Gartner – 5 Key Trends Transforming Supply Chains
Supply Chain Agility Case

- Intel established automated Artificial Intelligence solutions capable of evaluating Contract risks in more than 100,000 contract documents

- Used Robotic Automation to download documents, OCR to scan, and integrated the information into a “Risk Dashboard” that reported risks in SECONDS ....

Source: Gartner – Supply Chain: The Nervous System of Business – Sensing and Responding is Just the Beginning – April 2021
Supply Chain Agility Case

- Using 6-wheeled “Snack-bots” to deliver snacks and healthy beverages “the last mile” on college campuses

- Frito Lay using **Machine Learning** to manage acoustic sounds coming from laser reflection on chips to manage texture

Source: The Fascinating Way PepsiCo uses AI and Machine Learning to Ensure Success – April 2019
You may not be as ‘Agile’ as you think…

Source: Supply Chain Talent and Organizational Pulse Survey – Gartner, 2018
## Supply Chain Agility Assessment (1 of 2)

### [FIGURE 1] SUPPLY CHAIN AGILITY SCORING SPECTRUM

<table>
<thead>
<tr>
<th>Indicate your level of agreement with the following statements:</th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alertness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company is quick to detect changes in its environment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>My company is quick to detect opportunities in its environment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>My company is quick to detect threats in its environment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Our suppliers are quick to share relevant information with us.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Our customers are quick to share relevant information with us.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Usually, we can quickly access the data we need to make decisions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: David Gligor, “The 5 Dimensions of Supply Chain Agility” – CSCMP’s Supply Chain Quarterly, Oct 2015
Supply Chain Agility Assessment (2 of 2)

<table>
<thead>
<tr>
<th>Indicate your level of agreement with the following statements:</th>
<th>Strongly Disagree</th>
<th>Neutral</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decisiveness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company has processes in place that allow for quick decision making.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company is fast at making decisions regarding supply chain operations.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company is fast at making decisions regarding supply chain tactics.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Swiftness</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When it makes decisions regarding a change in its supply chain operations my company can quickly implement it.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When it makes decisions regarding a change in its supply chain tactics my company can quickly implement it.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company is quick at implementing changes to its supply chain.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company’s suppliers can quickly meet an increase in order size.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company’s suppliers can quickly adjust the specification of orders.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>My company’s suppliers can quickly adjust/expedite their delivery lead time.</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Score:
90+: Excellent
75-89: Good
60-74: Fair
Below 60: Poor

Source: David Gligor, “The 5 Dimensions of Supply Chain Agility” – CSCMP’s Supply Chain Quarterly, Oct 2015
Supply Chain Adaptability

- Make Strategic Decisions & Adjustments
  - Make Tactical Decisions & Adjustments
  - Gather supply chain data and information

ADAPTABILITY
AGILITY
VISIBILITY
Supply Chain Adaptability

“When you can’t change the direction of the wind, adjust your sails”

Adaptability is CULTURAL .... and every journey is different

Source: Mike Wilson - The Maritime Executive, “Adaptability is Key for Supply Chain Success” – Oct 2020
Supply Chain Adaptability
Adaptability Journey

1 - EXPLORING
Use traditional technologies to AUTOMATE existing capabilities

2 - DOING
Leverage digital technologies to EXTEND capabilities

3 - BECOMING
Achieve more SYNCRONIZED OPERATIONS with fewer silos

4 - BEING
Implement TRANSFORMED business, customer, and operating models

Don't get stuck here!

Adaptability: Predicted Technology Adoption

Cloud Computing and Storage
- In use today: 57%
- 1-2 years: 21%
- 3-5 years: 10%
- 6+ years: 3%

Inventory and Network Optimization Tools
- In use today: 45%
- 1-2 years: 32%
- 3-5 years: 12%
- 6+ years: 2%

Sensors and Automatic Identification
- In use today: 42%
- 1-2 years: 27%
- 3-5 years: 14%
- 6+ years: 5%

Robotics and Automation
- In use today: 38%
- 1-2 years: 23%
- 3-5 years: 15%
- 6+ years: 7%

Future Supply Chain Adaptability Approaches

By 2025, more than 50% of supply chain organizations will have a Technology Leader position reporting to the Chief Supply Chain Officer

Source: Gartner – 5 Key Trends Transforming Supply Chains
Failure is Critical to Adaptability!

Adaptive companies are more tolerant of failure

1. Start Small
2. Fail Fast
3. Scale Quickly

“It is only a failure if we fail to get the learning”

- Intuit Chairman Scott Cook -

Supply Chain Adaptability Case

- Designated 2019 “The Year of the Employee”
- Identified internal policies that were “overly conservative”
- “Culture by Design” - Inspired by tech companies that precisely describe their company culture
- Revamped meeting culture – too many meetings with no real direction
- Conducted experiments to determine what changes are working

Supply Chain Adaptability Case

- Challenged by Heavy, Bulky freight – lumber, appliances
- In 2017, began investing $1.2 Billion USD in supply chain improvements
- Innovated & Collaborated on new “Convoy Go” approach to manage needed “Drop Trailer” programs with Freight partners
- Supported 80% digital Sales growth in 3Q2020 with 60% sold through Stores

Source: Home Depot’s Culture of Supply Chain Innovation, Freight Waves, Feb 3, 2021
Adaptability: “Digital Consciousness” Survey

Each category is rated on the following scale:

<table>
<thead>
<tr>
<th>Category</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>1 point</td>
</tr>
<tr>
<td>Innovation/Technology</td>
<td>2 points</td>
</tr>
<tr>
<td>Customer Engagement</td>
<td>3 points</td>
</tr>
<tr>
<td>Talent</td>
<td>4 points</td>
</tr>
<tr>
<td>Workplace</td>
<td>1 point</td>
</tr>
</tbody>
</table>

To begin your UNIQUE Supply Chain organization improvement journey, take the assessment at: [www.mhi.org/dci](http://www.mhi.org/dci)

Adaptability: Digital Consciousness Index - DCI

Respondents

5% ELEVATED
12% HEIGHTENED
71% DEVELOPING
12% DORMANT

01 Waiting for adoption
02 Low levels of automation or connections
03 Innovation to collect/analyze digital information
04 Intelligent analytics to support decision making

How can you better implement...

- **Visibility** to gather supply chain data and information
- **Agility** to make tactical decisions and adjustments
- **Adaptability** to make strategic decisions and adjustments