

Supply Chain Alignment

Module 5.2

Kevin Lennox, LFM '06
Dave Penake, LFM '06

Chris Schechter, LFM '98 – Axcelis Technologies

Presentation for:
ESD.60 – Lean/Six Sigma Systems
MIT Leaders for Manufacturing Program (LFM)
Summer 2004

These materials were developed as part of MIT's ESD.60 course on "Lean/Six Sigma Systems." In some cases, the materials were produced by the lead instructor, Joel Cutcher-Gershenfeld, and in some cases by student teams working with LFM alumni/ae. Where the materials were developed by student teams, additional inputs from the faculty and from the technical instructor, Chris Musso, are reflected in some of the text or in an appendix

Overview

➤ Learning Objectives

- Understand basic concepts of Supply Chain Management
- Identify common disconnects within organizations
- Learn methods of evaluating supply chain effectiveness

➤ Session Design (20-30 min.)

- **Part I:** *Introduction and Learning Objectives (1-2 min.)*
- **Part II:** *Key Concept or Principle Defined and Explained (3-5 min.)*
- **Part III:** *Exercise or Activity Based on Field Data that Illustrates the Concept or Principle (7-10 min.)*
- **Part IV:** *Common “Disconnects,” Relevant Measures of Success, and Potential Action Assignment(s) to Apply Lessons Learned (7-10 min.)*
- **Part V:** *Evaluation and Concluding Comments (2-3 min.)*

Questions to Address

- What are the benefits of a healthy supply chain?
- What factors are important in supply chain evaluation?
- How can a corporation overcome SCM hurdles?

Supply Chain Management

- Definition – Supply Chain Management (SCM) is the collaborative effort of multiple channel members to design, implement, and manage seamless value-added processes to meet the real needs of the end customer.

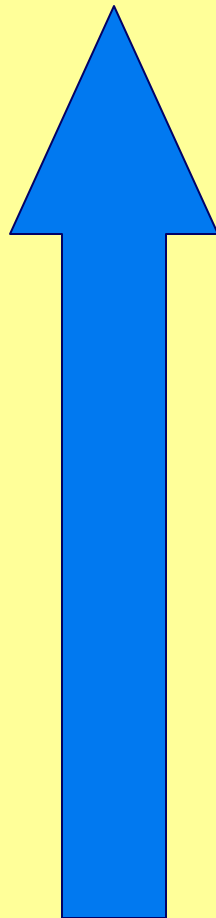
Motivation for SCM:

- Need to meet customer requirements
- Desire to reduce costs

Benefits of SCM

- Improved customer responsiveness
- Higher product quality
- Faster product innovation
- Reduced inventory costs
- More consistent on-time delivery

Supply Chain Integration Ladder



Characteristics of Effective Supply Chains

- Customer focus
- Open avenues of communication within and between corporations
- Investment in technology that enables supply chain management
- Performance measurement and competitive benchmarking

As the economy changes, as competition becomes more global, it's no longer company vs. company but supply chain vs. supply chain.

Harold Sirkin, VP Boston Consulting Group



Common Disconnects

Social Factors

- Ineffective and irregular communication
- Inconsistent operating goals
- Organizational culture and structure
- Resistance to change – lack of trust
- Lack of managerial commitment

Technical Factors

- Inadequate information systems
- Constrained resources
 - Technical
 - Financial

Disconnect Situations

➤ Within Organization

Design vs. Manufacturing – Conflicting Priorities

Background: Production engine fan flow starts to trend downward. A root cause investigation identifies fan blade twist angle as the key driver.

Disconnect: Design engineer needs to obtain and evaluate twist angle data from the supplier (internally owned). The manufacturer is focused on meeting production schedule and is unwilling to sacrifice the time and resources to generate the data.

Impact: Upper management gets involved and the investigation suffers significant delays.

➤ Outside of Organization

Revenue Sharing Partners – Inadequate Information Sharing

Background: Company A purchases engine sub-assemblies from company B. Co. B discovers a design flaw in one of their own models.

Disconnect: Co. B engineering team introduces a new design to address original flaw. Co. B contacts Co. A to offer redesign only to find out that Co. A had already discovered and resolved the same issue without collaborating.

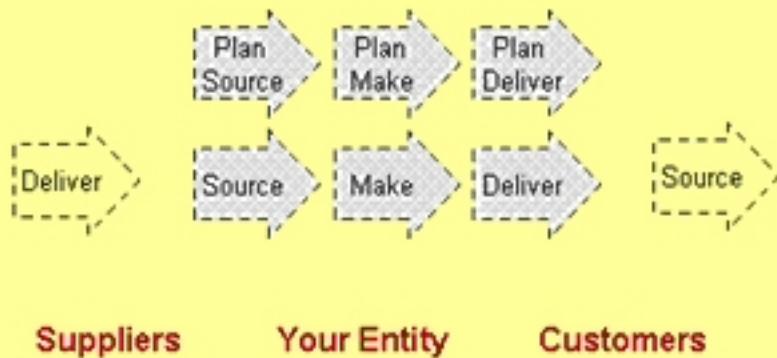
Impact: Redundant work done. Lost time and money associated with redesign.

Supply Chain Evaluation

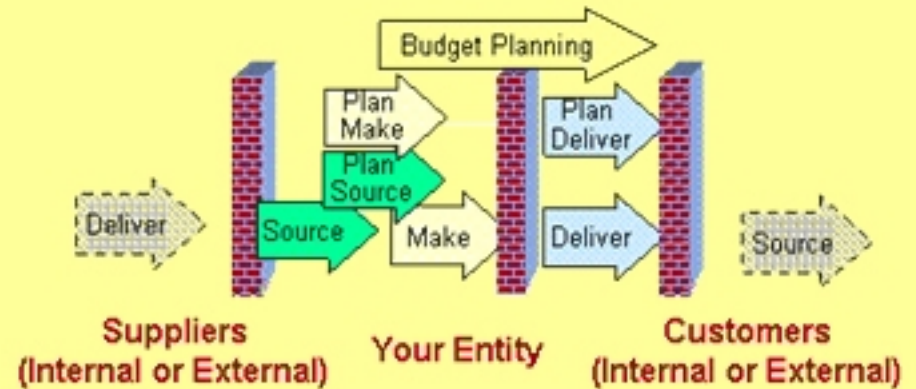
- Corporations can rate their supply chain effectiveness through 4 criteria using the SCOR (Supply Chain Operation Reference) Model
 - Plan
 - Processes and information that enable supply chain communication
 - Source
 - Management of information, relationships, and courses of action to enable raw material transfer
 - Make
 - Establishment of courses of action to meet production demands and manufacture material
 - Deliver
 - Execution of courses of action to meet customer delivery requirements

Supply Chain Maturity Model

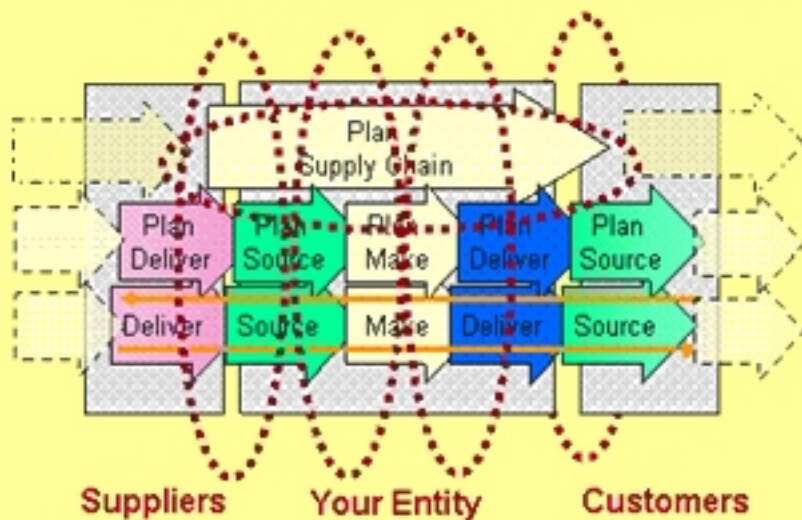
Stage 0: Informal Business



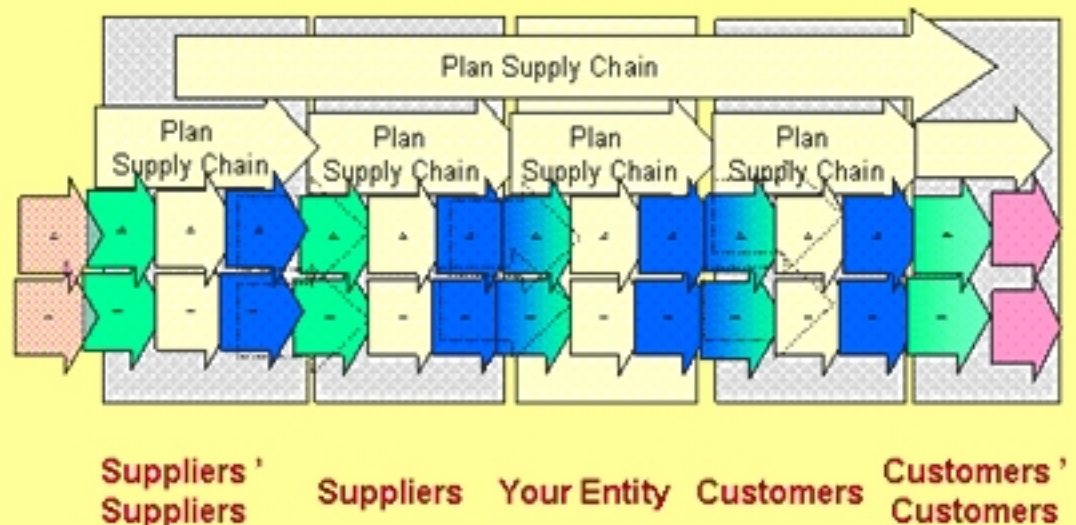
Stage 1: Functional Organisation



Stage 2: The Integrated Supply Chain



Stage 3: The Extended Enterprise



Concluding Comments

- Supply chain management has become increasingly important in a global economy.
- There are many barriers that prevent corporations from properly aligning entities within and between organizations.
- Advancements in IT have significantly improved SCM but there continues to be enormous potential for further development.

Appendix: Instructor's Comments and Class Discussion on 5.2

- Supplier Certification Systems
 - ISO 9000/9001, ISO 14000, other systems relate to six sigma, and often force similar discipline to the system.
- Long term v. Short Term Suppliers in the Extended Enterprise
 - How does a long term supply relationship relate to six sigma?
 - Does it enhance or hurt the six sigma program?
 - What are the advantages and disadvantages of short-term suppliers?
- The SCOR model may be too generic for six sigma

Appendix: Instructor's Guide

Slide	Time	Topic	Additional Talking Points
1-2	2-3 min	Introduction, overview and learning objectives	<ul style="list-style-type: none">•
3	3-5 min	Key Concepts	<ul style="list-style-type: none">• Describe the ladder and what each of the rungs represents. Talk about each of them individually.
TBD	7-10 min	Exercises/Activities	<ul style="list-style-type: none">• Use notes page on exercise slide within presentation.
TBD	5-7 min	Disconnects	<ul style="list-style-type: none">• Go through the examples to illustrate problems
TBD	2-3 min	Measurables	<ul style="list-style-type: none">• Focus on the plan arrow. As you will notice, it will grow as a company moves toward alignment of the supply chain.
TBD	1-2 min	Concluding comments	<ul style="list-style-type: none">• Highlight the customer

Bibliography

- 1) Fawcett, Stanley E. and Magnan, Gregory M. “Achieving World-Class Supply Chain Alignment: Benefits, Barriers, and Bridges”.
- 2) Pascal, Dennis. “Lean Production Simplified: A Plain-Language Guide to the World’s Most Powerful Production System”. Productivity Press: New York, 2002.
- 3) PRTM Management Consultants.
- 4) Steenstrup, K. “Strategic Planning; CIO Risk Monitor for Business Applications”.

Websites:

www.viewlocity.com

www.valdero.com

