Lack of Supply Chain Coordination and the Bullwhip Effect

- Supply chain coordination – all stages in the supply chain take actions together
- SC coordination requires that each stage take into account the effects of its actions on the other stages
- Lack of coordination results when:
  - Objectives of different stages conflict or
  - Information moving between stages is distorted

Bullwhip Effect

- Fluctuations in orders increase as they move up the supply chain from retailers to wholesalers to manufacturers to suppliers
- Distorts demand information within the supply chain, where different stages have very different estimates of what demand looks like

The Effect on Performance of Lack of Coordination

- Manufacturing cost (increases)
- Inventory cost (increases)
- Replenishment lead time (increases)
- Transportation cost (increases)
- Labor cost for shipping and receiving (increases)
- Level of product availability (decreases)
- Relationships across the supply chain (worsens)
- Profitability (decreases)
- The bullwhip effect reduces supply chain profitability by making it more expensive to provide a given level of product availability
Obstacles to Coordination in a Supply Chain

- Incentive Obstacles
- Information Processing Obstacles
- Operational Obstacles
- Pricing Obstacles
- Behavioral Obstacles

Behavioral Obstacles

- Problems in learning, often related to communication in the supply chain and how the supply chain is structured
- Each stage of the supply chain views its actions locally and is unable to see the impact of its actions on other stages
- Different stages react to the current local situation rather than trying to identify the root causes
- Based on local analysis, different stages blame each other for the fluctuations, with successive stages becoming enemies rather than partners
- No stage learns from its actions over time because the most significant consequences of the actions of any one stage occur elsewhere, resulting in a vicious cycle of actions and blame
- Lack of trust results in opportunism, duplication of effort, and lack of information sharing

Managerial Levers to Achieve Coordination

- Aligning Goals and Incentives
- Improving Information Accuracy
- Improving Operational Performance
- Designing Pricing Strategies to Stabilize Orders
- Building Strategic Partnerships and Trust

Trust in the Supply Chain

- Historically, supply chain relationships are based on power or trust
- Disadvantages of power-based relationship:
  - Results in one stage maximizing profits, often at the expense of other stages
  - Can hurt a company when balance of power changes
  - Less powerful stages have sought ways to resist

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Designing a Relationship with Cooperation and Trust

◆ Assessing the value of the relationship and its contributions
◆ Identifying operational roles and decision rights for each party
◆ Creating effective contracts
◆ Designing effective conflict resolution mechanisms

Collaborative Planning, Forecasting, and Replenishment (CPFR)

◆ Sellers and buyers in a supply chain may collaborate along any or all of the following:
  – Strategy and planning
  – Demand and supply management
  – Execution
  – Analysis
◆ CPFR scenarios
  – Retail event collaboration
  – DC replenishment collaboration
  – Store replenishment collaboration
  – Collaborative assortment planning

The Role of IT in Coordination

◆ Enablement of coordination the ultimate goal
◆ Information availability
◆ Use of information available to make decisions
◆ IT solution selection depends on SCM maturity in the organization
◆ ERP and best-of-breed vendors
  – ERP focuses on standardization
  – Best-of-breed focuses on differentiation

Achieving Coordination in Practice

◆ Quantify the bullwhip effect
◆ Get top management commitment for coordination
◆ Devote resources to coordination
◆ Focus on communication with other stages
◆ Try to achieve coordination in the entire supply chain network
◆ Use technology to improve connectivity in the supply chain
◆ Share the benefits of coordination equitably