Supply Chain Management (SCM) Systems

MIS 4133
Software Systems
Outline

- SCM System Definition
- SCM History
- SCM Examples
- SCM Applications
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- Success Factors
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- Performance Metrics
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SCM System

- Integrate supply chains
- Provide information to help suppliers, distributors, and so forth, coordinate, schedule, and control business processes for production, inventory management, etc.
- Are outward facing, focusing on the firm managing its relationship with suppliers
- Are one type of interorganizational system, automating the information flow across organizational boundaries
A Typical Supply Chain

Suppliers

Plants

Distribution Centers/Warehouses

Customers
SCM (Brief) History

- MRP
  - Schedule of raw materials and production schedule
- MRP II
  - Master production schedule, MRP, and shop floor control
- SCM
  - Going outside of organization to connect members
SCM: 5 Basic Components

1. Plan
   - Managing all resources and developing metrics
2. Source
   - Choosing suppliers
3. Make
   - Manufacturing
4. Deliver
   - Logistics
5. Return
   - Return of defective products
An Example: Haworth’s SCM System

- Distribution Centers
- WMS
  - Shipping notifications
  - Plans
  - Orders
  - Orders and shipping notifications
- SeeBeyond Middleware
  - Plans and shipments
- TMS
  - Orders
- Freight Carriers

Back-end systems
- Contract furniture applications
- Mid-market furniture applications
- ERP applications

Laudon and Laudon 2006, p. 58
“SCM Helps Deliver Thanksgiving Turkeys”

“Perdue Farms produces more than 48 million pounds of chicken products and almost 4 million pounds of turkey products each week. For Thanksgiving, Perdue will ship roughly 1 million whole turkeys – and all these turkeys will arrive at the supermarkets within 24 hours of processing. This logistics task is much easier for Perdue because the company invested $20 million in Manugistics supply chain management software, including forecasting and supply chain planning tools. With the aid of the SCM system, Perdue has gotten much better at delivering the right number of turkeys to the right customers at the right time, according to Chief Information Officer Don Taylor. ‘As we get to November, we have live information at our fingertips,’ he says.

Perdue also uses technology to make sure its products arrive fresh. Each of its delivery trucks is equipped with a global positioning system, so dispatchers always know where the trucks are and can send out replacement trucks if necessary. Some supermarkets have vendor-management inventory-control systems, which allow Perdue to track sales of its products in real time. ‘We’re always looking at new technologies as they come along to see what makes sense for us,’ Taylor says. And SCM certainly makes sense for Thanksgiving turkeys.” (Martin et al. 2005, p. 209)
SCM Applications

- **Supply chain planning systems**
  - Enables the firm to create demand forecasts and to develop sourcing and manufacturing plans for a product.

- **Supply chain execution systems**
  - Manages the flow of products through distribution centers and warehouses.
  - Ensures that products are delivered to the right locations in the most efficient manner.
RFID

- Radio Frequency Identification
- Provides the ability to track the movement of goods throughout the supply chain
- Uses tiny tags with embedded microchips containing data about an item and its location
How RFID Works

Radio waves

Tag

RFID Reader

Host computer
SCM System Roadblocks

- Gaining trust from suppliers and partners
- Internal resistance to change
- Many mistakes at first
SCM System Roadblock Examples

- NCR in Dayton, Ohio
  - Spent $7 million on SC system
  - No initial return on investment because employees would not use it

- Plasti-Line in Knoxville, Tennessee
  - Discovered after SCM system implementation that its ERP system would not integrate with it
  - Eventually, able to slash manufacturing head count by 34%
SCM Success Factors

1. Get suppliers on-board
2. Slowly move employees off the phone and fax
3. Prepare for bad initial information from the system
4. Make sure the SCM system can “talk” to the ERP system
5. Defuse political problems
SCM System Business Value

- Allow supply chains to compete against one another on their ability to reduce costs and time across the chains
- Help decide when and what to produce, store, and move
- Rapidly communicate orders
- Track the status of orders
- Check inventory availability and monitor inventory levels
- Reduce inventory, transportation, and warehousing costs
- Track shipments
- Plan production based on actual customer demand
- Rapidly communicate changes in product design
- Improve customer service and responsiveness
- Reduce cost in moving products
- Improve cash utilization – get paid faster because products are delivered faster
Supply Chain Performance Metrics

- Fill rate
- Average time from order to delivery
- Number of days of supply in inventory
- Forecast accuracy
- Cycle time for sourcing and making a product
ERP and SCM

Is ERP system software needed before installing SCM system software?
Integrating ERP and SCM Systems

- ERP integrates systems within an organization
- SCM integrates systems among organizations
- Market forces are requiring more efficient and effective organizations
Types of Integration for ERP and SCM Systems

- Data integration
  - Data exchange between corporate applications
- Application integration
  - Technical integration, procedural calls between applications
- Business process integration
  - Total integrations, all aspects


References