Recap from Tuesday August 20

- Activities in a supply chain
- Strategic, tactical, operational decisions
- Examples and consequences of
  - Excess inventory
  - Excess demand
- TODAY
  - Examples of “flexibility”
  - Chapter 1 game

Goal in SCM: Profitably match supply and demand

**SUPPLY**
- Inventory management
- Production planning
- Scheduling

**MATCH**

**DEMAND**
- Product development
- Pricing
- Promotions

*Flexibility* on both supply and demand sides leads to a better match.
Examples of flexibility: Flexible capacity, outsourcing
But flexibility usually comes at a cost!

Buffering variability and uncertainty: backordering demand, holding inventory, carrying extra capacity
Some strategies for “flexibility”

- Focus on core competency, outsource other activities, e.g.,
  - Manufacturing
  - Fulfillment
  - Distribution
- Virtual integration/collaboration

Focusing on core competencies

- Xerox announced that it will exit the small office/home office (SOHO) business segment. The decision was necessary for Xerox to focus on its core office and production printing segments, which the company sees as higher-growth opportunities (June 2001)
- Boeing now promotes itself as a company with a “core competency” not as an airplane builder, but as an integrator of complex electronics and IT-intensive systems. Plane-making has the inherently slower growth of any mature manufacturing business, which is why Boeing is outsourcing more and more metal-bending work and pushing what it calls “new frontier” opportunities, most of them in the company’s high-tech Space and Communications unit, which includes major IT-intensive projects. (April 20, 2001)
Outsourcing manufacturing - Computing and electronics industry

- Original equipment manufacturers (OEMs) outsource production and logistics to electronic manufacturing services (EMS) providers
- Speed and scale
- Improved asset utilization and low cost production
- Access to global markets
- Supply chain coordination and logistics services

Outsourcing fulfillment

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eToys - Fulfillment operations

- **Stage I: In-house fulfillment**
  - 80,000 sq. ft. low-tech warehouse in CA
  - 75% of orders come from east coast
  - Major fulfillment problems during holiday season 1998

- **Stage II: Outsourcing (1999)**
  - Warehouse and distribution agreement with Fingerhut Business Services
  - Access to one million sq. ft. facility in Utah, highly automated
  - Additional value-added services

- **Stage III: In-house (again!)**
  - Delivered 96% of merchandise on time during 1999 holiday season
  - Higher than expected order fulfillment costs
  - $62 million in inventory
  - 400,000 sq. ft. warehouse in Danville, Virginia

- **Stage IV: Closing doors**
  - Filed for bankruptcy in March 2001
Warehousing

- Webvan filed Chapter 11 bankruptcy protection and laid off most of its remaining 2,000 workers (July 2001)
  - Spent millions of dollars on high-tech warehouses
  - Realized that small-scale delivery services worked better than its costly distribution network. Its first and only market to turn an operating profit was Orange County, where the company operated out of one of HomeGrocer's facilities, which were about a third the size of the massive warehouses that Louis Borders had devised.
Roadmap for ISYE 3104

- Make-or-buy decisions, learning curves
- Aggregate planning
- Deterministic inventory models
- Stochastic inventory models
- Lot sizing, scheduling
- Warehousing
- Layout design
- Optional topics (depending on time and interest)
  - Reverse logistics
  - Supply chain collaboration