Matching Supply and Demand
Course Module in Supply Chain Management

Course Modules help faculty select and sequence HBS Publishing titles for use in segments of a course. Each module represents subject matter experts’ thinking about the best materials to assign and how to organize them to facilitate learning. In making selections, we’ve received guidance from faculty at Harvard Business School and other major academic institutions.

Each module recommends four to six items. Whenever possible at least one alternative item for each main recommendation is included. Cases form the core of many modules, but we also include readings from Harvard Business Review, HBS background notes, and other course materials.

I. Overview of suggested content (HBS cases unless otherwise noted)

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<tr>
<th>Title</th>
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<td>Alternative: Ten Guiding Principles for High-Impact SCM (Business Horizons)</td>
<td>Fawcett &amp; Magnan</td>
<td>BH109</td>
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<td>2. Sport Obermeyer Ltd.</td>
<td>Hammond</td>
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<td>1995</td>
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<td>3. Global Supply Chain Management Simulation V2 (Enspire Learning--online delivery)</td>
<td>Hammond</td>
<td>8623</td>
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<td>4. ZARA: IT for Fast Fashion</td>
<td>McAfee</td>
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<td>5. Product Development at Dell Computer Corp.</td>
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<td>Alternative 1: Ford Motor Co.: Supply Chain Strategy and</td>
<td>Austin</td>
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II. Rationale for selection and sequencing the items in this module
Each of the alternatives in the opening slot provides a broad overview of basic supply-chain issues, and either will help students get their footing, especially if this module is used early in a course on SCM or if students have had no courses or professional background in operations management.

The next two items form the core of this module. The Sport Obermeyer case (one of HBS’s bestselling operations cases) facilitates discussion of three topics especially relevant in today’s business
environment: production planning for short-life-cycle fashion products, operational changes that reduce the cost of mismatched supply and demand, and coordination issues in a global supply chain. Sport Obermeyer prepares students to confront tricky supply-demand issues head-on through the online interactive product “The Global Supply Chain Management Simulation,” which casts students as the supply-chain manager in a company that makes and markets cellphones. The situation includes a market that demands a high level of customizability, company forecasters who contradict one another, and a lifelike assortment of supply-chain “surprises.” Note, this simulation should be thought of as 2-4 hours of homework, followed by a class devoted to debriefing students on their experiences.

The ZARA case will enrich an introductory module on supply and demand by presenting a cutting-edge (and rather unorthodox) approach to supply-demand conundrums, and by introducing IT as an important variable. Whether you assign the case or the alternative HBR reading “Rapid-Fire Fulfillment” (which explores ZARA’s strengths from a slightly different perspective) you can count on generating energetic discussion around the question, Has ZARA cracked a part of the supply-demand code?

Both the Obermeyer and the ZARA cases are set within the fashion industry. Either of the cases recommended for the final slot in this module will take students outside the realm of the fashion. Arguably, no discussion of strategic approach to basic supply-and-demand issues is complete without an examination of Dell Computers, a company that has become synonymous with both product customization and direct-to-customer distribution. Alternatively, students can learn about the Dell model—and the special challenges of applying it to the automotive industry—from the Ford Motor case (which should be assigned in conjunction with HBR’s 1998 interview with Michael Dell).

III. Detailed description of recommended items
Faced with an unprecedented number and variety of products on the market, managers are finding it more difficult to predict demand and plan production and orders accordingly. As a result, inaccurate forecasts are increasing and, along with them, the costs of those errors. A new approach to the entire forecasting, planning, and production process, accurate response entails first figuring out what forecasters can and cannot predict well. Then supply chains must be made fast and flexible so that managers can postpone decisions about their most unpredictable items until they have some market signals—like early-season sales results—to help correctly match supply with demand. Accurate response enables companies to use the power of flexible manufacturing and shorter cycle time much more effectively.
Subjects: Demand analysis; Forecasting; Production planning; Scheduling; Supply & demand.

• A classic HBR piece by a leader in the field
• Touches on key issues from a broad range of SCM topics

Alternative: Ten Guiding Principles for High-Impact SCM Stanley Fawcett and Gregory Magnan (Business Horizons)
In the face of fierce global competition and soaring customer expectations, many companies have turned to supply chain management (SCM) to leverage the resources and know-how of suppliers and customers. To obtain an accurate view of what this requires, 52 in-depth interviews were carried out with supply chain leaders to answer the question, “What are the principles that drive successful supply chain design and collaboration?” The findings are summarized as the 10 guiding principles of high-impact SCM.
Mapping these guiding principles to a maturity framework reveals that there is much work awaiting managers who embark on the arduous journey toward supply chain collaboration.

**Subjects:** Operations management; Success; Supply chain

- Rich but accessible overview of supply-demand issues from Business Horizons (Kelley School, Indiana University)
- Quickly brings students up to date regarding contemporary issues of integration and cross-company collaboration
- Offers concrete recommendations for increasing the SCM savvy of general managers

2. **Sport Obermeyer Ltd.** Janice Hammond and Ananth Raman

Describes operations at a skiwear design and merchandising company and its supply partner. Introduces production planning for short-life-cycle products with uncertain demand and allows students to analyze a reduced version of the company's production planning problem. In addition, provides details about information and material flows that allow students to make recommendations for operational improvements, including comparisons between sourcing products in Hong Kong and China. Learning Objective: Teaches students how to match supply with demand for products with high demand uncertainty and a globally dispersed supply chain.

**Subjects:** China; Clothing; Demand analysis; Forecasting; International operations; Production planning; Purchasing; Sourcing; Supply chain

- Ideal for an in-depth exploration of forecasting, planning, and production in a complex supply chain
- Covers issues pertaining to partnering (Sport Obermeyer has a partner based in Hong Kong)
- Accompanied by an extensive 31-page teaching note that covers numerous pedagogical issues and perspectives

3. **Global Supply Chain Management Simulation** (Enspire Learning-online delivery)

This interactive online simulation allows students to try their hands at managing the complexities of a global supply chain by putting them in the shoes of the supply chain manager of a mobile phone manufacturer. Students become responsible for the rollout of two models of mobile phones. Illustrates key concepts of supply chain management, such as: creating a balanced supply chain across suppliers with different lead times, building flexibility into the supply chain to avoid stock-outs and excess inventory, and evaluating and using demand forecasts. Student success is measured by company profits as well as through a dynamic evaluation process in which students answer probing questions from the company's board members. Students can use the simulation individually or in teams. Users must have an Internet connection (dial-up or other) and a personal computer that meets minimum technical requirements.

**Subjects:** Demand analysis; Forecasting; Operations management; Product design; Product management; Suppliers; Supply chain

- Students build skills and conceptual understanding as they confront uncertainty quarter by quarter
- Ideal for use by two-person teams
- Professor receives detailed feedback on student performance

4. **ZARA: IT for Fast Fashion** Andrew McAfee; Anders Sjoman and Vincent Dessain
In 2003, Zara's CIO must decide whether to upgrade the retailer's IT infrastructure and capabilities. At the time of the case, the company relies on an out-of-date operating system for its store terminals and has no full-time network in place across stores. Despite these limitations, however, Zara's parent company, Inditex, has built an extraordinarily well-performing value chain that is by far the most responsive in the industry. The case describes this value chain, concentrating on its operations and IT infrastructure.

Learning Objective: To show how one company makes brilliant use of multiple information channels: subjective and objective; qualitative and quantitative; and phone, face-to-face, e-mail, and modem. Also, to highlight the inside-out approach to selecting IT. To demonstrate how information and IT support a business model.

Subjects: Computer networks, Information technology, Operations management, Production, Supply chain, Vertical integration. Setting: Spain; Apparel industry; Retail industry; $4 billion revenues; 32,000 employees; 2003

- Explores a contrarian but highly successful approach to forecasting, planning, and production
- Introduces key elements of the role of IT in mediating supply and demand

Alternative: Rapid-Fire Fulfillment Kasra Ferdows; Michael Lewis and Jose Machuca

Would you send a half-empty truck across Europe or pay to airfreight coats to Japan twice a week? Would you move unsold items out of your shop after only two weeks? Would you run your factories just during the day shift? Is this any way to run an efficient supply chain? For Spanish clothier Zara it is. Not that any one of these tactics is especially effective in itself. Rather, they stem from a holistic approach to supply chain management that optimizes the entire chain instead of focusing on individual parts. In the process, Zara defies most of the current conventional wisdom about how supply chains should be run. Unlike so many of its peers, which rush to outsource, Zara keeps almost half of its production in-house. Far from pushing its factories to maximize output, the company focuses capital on building extra capacity. Rather than chase economies of scale, Zara manufactures and distributes products in small batches. Instead of outside partners, the company manages all design, warehousing, distribution, and logistics functions itself. The result is a superresponsive supply chain exquisitely tailored to Zara's business model.

Zara can design, produce, and deliver a new garment to its 600-plus stores worldwide in a mere 15 days. So in Zara's shops, customers can always find new products—but in limited supply. Customers think, "This green shirt fits me, and there is one on the rack. If I don't buy it now, I'll lose my chance." That urgency translates into high profit margins and steady 20% yearly growth in a tough economic climate. Some of Zara's specific practices may be directly applicable only in industries where product life cycles are very short. But Zara's simple philosophy of reaping bottom-line profits through end-to-end control of the supply chain can be applied to any industry.

Subjects: Clothing industry; Competitive advantage; Fashion; Operations management; Outsourcing; Partnerships; Spain; Suppliers; Supply & demand; Supply chain

5. Product Development at Dell Computer Corp. Stefan Thomke; Vish Krishnan and Ashok Nimgade

Describes how Dell redesigned their new-product-development process after experiencing a major product setback and a significant decline in firm profits in 1993. Dell's new process is challenged during the development of a new line of portable computers when the incoming head of portables has to manage the risk of using a new technology. This case focuses on: 1) product development process design, 2) the costs and benefits of flexibility and structure in uncertain environments, and 3) managing development risk during and after a financial and market setback. Learning Objective: Explores managerial issues in product development that can be found in uncertain and risky environments. Allows managers and students to discuss and quantify the cost and benefits of process flexibility.
Subjects: Computer industry; Product development; Risk; Uncertainty

- Focus on a well-known company with widely recognized products helps launch case discussion more easily
- Provides detailed coverage of the competitive environment and the strategic and technological as well as operations issues
- Facilitates a simple analysis of alternative product-development options

Alternative 1: Ford Motor Co.: Supply Chain Strategy Robert Austin
Describes Ford's examination of its supply chain to evaluate whether the company should "virtually integrate" on the Dell Computers model.
Subjects: Automobile industry; Electronic commerce; Information technology; Logistics; Suppliers; Supply chain

- Examines technological enablement of supply and fulfillment chains
- Considers an attempt to re-engineer long and complicated legacies; more specifically, considers applicability of Dell model to a different industry
- Note: To be used in conjunction with the HBR article The Power of Virtual Integration: An Interview with Dell Computer's Michael Dell (No.98208)

This interview offers a deeper look inside Dell's highly publicized success and offers managers a model of how traditional relationships in a value chain can be reconceived in the Information Age. The individual pieces of Dell Computer's strategy--customer focus, supplier partnerships, mass customization, just-in-time manufacturing--may all be familiar. But Michael Dell's business insight about how to combine them is highly innovative: Technology is enabling coordination across company boundaries to achieve new levels of efficiency and productivity, as well as extraordinary returns to investors. In this HBR interview, Michael Dell describes to HBR editor-at-large, Joan Magretta, how his company is achieving "virtual integration" with its customers and suppliers. Direct relationships with customers create valuable information, which in turn allows the company to coordinate its entire value chain back through manufacturing to product design. Dell describes how his company has come to achieve this tight coordination without the "drag effect" of ownership.
Subjects: Interviews; Inventory management; Leadership; Market segmentation; Suppliers; Technology; Vertical Integration