# *Solutions Manual for Supply Chain Management 8th Edition by Chopra*

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CHAPTER ONE
Discussion Questions

1 Consider the purchase of a can of soda at a convenience store. Describe the various stages in the supply chain and the different type(s) of flows involved.

When a customer purchases a can of soda at a convenience store, their purchase represents the end of a supply chain's delivery of an item and the beginning of information regarding his or her purchase flowing in the opposite direction.

The supply chain stages include customers, retailers, wholesalers/distributors, manufacturers, and component/raw material suppliers. A customer's purchase moves product toward the customer and dollars and information toward the retailer.

The retailer places an order from the wholesaler/distributor to replenish stock, thereby moving information back up the supply chain while moving product down the supply chain. As the order is filled, the retailer will move dollars back up the supply chain.

The wholesaler/distributor transmits information and dollars to the manufacturer who produces the product and ships it down the supply chain to the wholesaler.

Finally (or initially, depending on your perspective) the manufacturer moves orders (information) and dollars toward suppliers in exchange for material flow into their production processes.

2 Why should a firm such as Apple consider total supply chain profitability when making decisions?

Apple realizes that its ultimate success lies with the success of its supply chain and its ability to create value and generate supply chain surplus. For example, Apple has dealt very successfully with the uncertainty associated with introducing new products because its supplier Foxconn has adjusted production capacity quickly in response to changes in demand. If Apple were to view supply chain operations as a zero sum game, it would lose its competitive edge as its suppliers' businesses struggled and lost trust with the Apple partnership. Apple's profit gained at the expense of its supply chain partners would be short lived. Just as a physical chain is only as strong as its weakest link, the supply chain can be successful only if all members cooperate and focus on a global optimum rather than many local optima. Real value creation occurs if Apple and its supply chain partners can together run the supply chain more effectively.

3 What are some strategic, planning, and operational decisions that must be made by an apparel retailer such as Gap?

As Gap plans supply chain strategy it must first consider the marketing function's pricing and product plans to structure a supply chain consistent with these plans. For example, supply chain flexibility must be aligned with the rate at which Gap plans to introduce new products. Similarly, suppliers must adapt to promotion plans at Gap if supply is to match demand. Strategic considerations such as the capacity of each supplier and assembly operations, sourcing decisions, and how logistics are to be handled are all part of the design. The supply chain must also settle on communication channels and frequencies.

Supply chain planning takes the strategic decisions as a given and seeks to exploit efficiencies in the chain to maximize supply chain surplus. The entire chain should collaborate in forecasting and planning production to achieve a global optimum. The forecasts should consider planned promotions and known seasonal fluctuations in demand.

The operational decision takes the plans as a given and makes day-to-day decisions to process customer orders, allocate resources to certain customers, trigger orders from supply chain members, and deliver products.

4 Consider the supply chain involved when a customer purchases a book at a bookstore. Identify the cycles in this supply chain and the location of the push/pull boundary.

All supply chain processes can be broken down into four process cycles that connect the five stages of the supply chain: the customer order cycle, the replenishment cycle, the manufacturing cycle, and the procurement cycle.
The customer order cycle connects the customer with the retailer; this connection is made as the book, *Supply Chain Management* by Chopra, is selected and paid for by the customer.

The replenishment cycle connects the retailer and the distributor and is triggered by the retailer's need to fill the empty shelf space with another copy of this book.

The manufacturing cycle connects the distributor and the manufacturer. As demand for the book is realized and distributors empty their warehouses, they signal the manufacturer to print another million copies to fill their empty warehouses.

Finally, the procurement cycle connects the manufacturer and the supplier. The manufacturer requires raw material inputs of paper, ink, and so on, to begin the assembly process for another batch of *Supply Chain Management*.
The push/pull boundary exists where demand switches from reactive (pull) to speculative (push) production. For most bookstore supply chains, the push/pull boundary is between the customer order cycle and the replenishment cycle. The customer order pulls the book from the bookstore shelf but the initial production

of the book was triggered by a build order that moved materials along the supply chain to the retail outlet.

5 Consider the supply chain involved when a customer orders a hardcopy book from Amazon. Identify the push/pull boundary and two processes each in the push and pull phases.

In Amazon's original operations design, the push/pull boundary existed between the retailer (Amazon) and their distributor. Amazon ordered product from the distributor and the customer order arrived. Today, Amazon has almost one 100 warehouses where it stocks an inventory of items it is confident will sell. In this scenario, the push/pull boundary exists between the customer and the retailer.

Processes in the pull phase are the order fulfillment, shipping, customer returns, and customer billing. Processes in the push phase are production, stock replenishments, shipping, and payment.

6 In what way do supply chain flows affect the success or failure of a firm such as Amazon? List two supply chain decisions that have a significant impact on supply chain profitability.

The success or failure of a company such as Amazon is decided by the effective function of its supply chain. The flow of products from publishers to distributors to customers must be rapid and reliable to satisfy customers. The goal is to effectively match supply and demand. The flow of information back through the supply chain allows all members to coordinate efforts. The flow of money allows all supply chain members to maintain operations. Supply chain profitability is influenced by location of facilities, inventory, sourcing, promotion, and fulfillment decisions.

7 List some of the strategic, planning, and operational decisions that an automotive manufacturer must make with regards to its supply chain.

An automotive manufacturer must consider the various models it produces and segment them by the volume sold, the price at which they sell, and the options available. Strategic decisions include deciding on which models will be produced at plants in each market and which models will be centralized into a few plants. Planning decisions include deciding on the number of shifts that each plant will operate over the coming months, the level of parts inventory and finished goods inventory the supply chain will aim for, and periods when plants will plan to run overtime. Operational decisions include deciding on which cars will be shipped to each dealer.

8 Identify two planning decisions that the paint industry supply chain had to make when mixing was done at paint manufacturing facilities and colored paint was

sent to retailers. Discuss how these planning decisions changed once mixing was moved to retail stores.

When mixing was done at a manufacturing facility, plant managers had to plan the quantity of paint to produce by color and retailers had to plan the level of inventory to carry by color. This often led to a mismatch between supply and demand because customer demand is hard to forecast by color. When mixing shifted to retailers, plant managers only had to plan the total quantity of base paint to produce, and retailers only had to plan on the inventory of base paint to carry. This improved the matching of supply and demand because colors are mixed after the customer places the order.

9 Give an example of how changes in a CRM process like pricing may impact an ISCM process like supply planning at a firm such as Apple. What problems may arise if the two processes do not communicate with each other?

Demand for products can increase significantly if Apple decides to run a promotion that offers customers a discount. If the planned promotion is not coordinated with supply planning, shortages are likely to result because the supply plan will be based on anticipated demand without a promotion. Any marketing activities that may affect customer demand should be coordinated with supply planning if supply is to match demand.