

Solution Manual for Principles of Supply Chain Management A Balanced Approach 4th Edition Wisner Tan Leong 1285428315 9781285428314

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PRINCIPLES OF SUPPLY CHAIN MANAGEMENT: A BALANCED APPROACH, 4thEd.

Answers to Questions/Problems

Chapter One

Discussion Questions

1. Define the term supply chain management in your own words, and list its most important activities.

Ans.: The Supply-Chain Council's definition of supply chain management is "*[m]anaging supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer.*"

These are also the most important activities, however integration of key supply chain processes might also be included in there.

2. Can a small business like a local sandwich or bicycle shop benefit from practicing supply chain management? What would they most likely concentrate on?

Ans.: Yes, any organization can implement at least some of the important concepts. A good place to start is the rationalization or reduction of the supply base. Small businesses might also

want to concentrate on customers as a starting point.

3. Describe and draw a supply chain for a bicycle repair shop and list the important supply chain members.

Ans.: This will vary from student to student, but should include for instance parts suppliers, bicycle suppliers and other suppliers (ie, helmet suppliers) and services (ie, repair services) as 1st-tier suppliers and bicycle owners as 1st-tier customers.

4. What roles do “collaboration” and “trust” play in the practice of supply chain management?

Ans.: This is essential for process integration. Sharing information and determining joint strategies is part of the integration/collaboration process, and to do this, trust must be present between the customer/focal firm/supplier.

5. What types of organizations would benefit the most from practicing supply chain management? What sorts of improvements could be expected?

Ans.: Firms with many suppliers, many complex products, large inventories and many customers (in other words, firms with many supply chains). Gains would be lower purchasing costs, lower carrying costs, better product quality, and better customer service.

6. What is the bullwhip effect and what causes it? How would you try to reduce the bullwhip effect?

Ans.: The magnification of safety stock and erratic buying behavior as customers along the supply chain forecast demand and add safety stock to their forecasts and production schedules causes the bullwhip effect. As we move further back up the supply chain then, more and more of the output is in the form of safety stocks. Reducing the need to forecast (by agreeing on a future purchase quantity or using CPFR) is one way to reduce the bullwhip effect.

7. What are the benefits of supply chain management?

Ans.: Reduction of the bullwhip effect, better buyer/supplier relationships, better quality, lower costs, better customer service, higher demand, more profits.

8. Can nonprofit, educational, or government organizations benefit from supply chain management? How?

Ans.: Yes. All services and organizations can benefit in terms of at least better customer service, better inventory management, and cheaper purchase prices.

9. What does the term, “third-tier supplier” mean? What about “third-tier customer”? What about the “focal firm”? Provide examples.

Ans.: First-tier suppliers are the focal firm’s direct suppliers. 2nd-tier suppliers are the focal

firm's suppliers' direct suppliers. 3rd-tier suppliers are the focal firm's suppliers' suppliers' suppliers. Company A sells wood to Company B. Company B sells furniture to Company C. Company C sells the furniture to Wal-Mart. Company A is Wal-Mart's 3rd-tier supplier. Similarly, the focal firm's customers' customers' customers are their 3rd-tier customers. The focal firm just refers to the firm in question, or in the topic of discussion.

10. Could a firm have more than one supply chain? Explain.

Ans.: Yes. Each product manufactured or sold by a firm can potentially belong to a separate set of supply chain trading partners. Wal-Mart has thousands of supply chains.

11. When did the idea and term, supply chain management, first begin to be thought about and discussed? Which two operations management practices became the origin of supply chain management?

Ans.: The general idea of supply chain management had been discussed for many years prior to the chain of events shown in Figure 1.1. Back in 1915, Arch W. Shaw of the Harvard Business School wrote the textbook, *Some Problems in Market Distribution*, considered by many to be the first on the topic of what we now refer to as supply chain management. The text included discussions of how best to purchase raw materials, transport products, locate facilities, and analyze productivity and waste. According to C. John Langley, Jr., professor of supply chain management at the Georgia Institute of Technology, "The idea that companies ought to work together and coordinate activities has always been around, but ask people today what one of the biggest problems with supply chains are today, and they say companies don't work very well together."

The 1980s were the breakout years for supply chain management. One of the first widely recorded uses of the term *supply chain management* came about in a paper published in 1982. Intense global competition beginning in the 1980s (and continuing today) provided an incentive for U.S. manufacturers to offer lower-cost, higher-quality products along with higher levels of customer service. Manufacturers utilized just-in-time (JIT) and total quality management (TQM) strategies to improve quality, manufacturing efficiency, and delivery times. In a JIT manufacturing environment with little inventory to cushion scheduling and/or production problems, firms began to realize the potential benefits and importance of strategic and cooperative supplier-buyer-customer relationships. The concept of these partnerships or alliances emerged as manufacturers experimented with JIT and TQM. These were the origins of SCM.

12. Do you think supply chain management is simply the latest trend in management thinking and will die out in a few years? Why or why not?

Ans.: This answer will vary because it was not specifically discussed, however, considering that the ideas of SCM have been around for many, many years makes one think that the practice is here to stay.

13. How has technology impacted supply chain management?

Ans.: SCM software and e-commerce has aided supply chain integration and aided in the evolution and adoption of supply chain management. Sharing information with supply chain partners through the internet has enabled firms to integrate stocking, logistics, materials acquisition, shipping, and other functions to create a more proactive and effective style of business management and customer responsiveness

14. What are the four foundation elements of supply chain management? Describe some activities within each element.

Ans.: The four elements are supply (supply base reduction, supplier alliances, SRM, global sourcing, ethical and sustainable sourcing), operations (demand management, CPFR, inventory management, MRP, ERP, lean systems, Six Sigma quality), logistics (logistics management, CRM, network design, RFID, global supply chains, sustainability, service response logistics), and integration (barriers to integration, risk and security management, performance measurement, green supply chains).

15. Is the use of a large number of suppliers a good idea? Why?

Ans.: This somewhat depends. Certainly SCM suggests fewer suppliers and longer-term relationships, however there can always be exceptions to this rule. Purchasing a widely available common product like soap or tissue paper might be better done with a large number of suppliers competing for this business. But this works against ever creating trusting and lasting supply chain partnerships. In most cases though, use of a few key suppliers for an item is considered a good idea, since it means larger supply quantities, leading to lower prices and better service.

16. Do you think the proper way to choose a supplier is to always find the one that will give you the lowest price? When might this not be a good idea?

Ans.: Absolutely not. Low price is sometimes fine, if quality or service is not an issue, as in buying some MRO items. But when quality and service matter, price should only be one of the purchase criteria.

17. What is supplier management? What are some of the activities of supplier management?

Ans.: Simply put, this means encouraging or helping the firm's suppliers to perform in a desired fashion, and there are a number of ways to do this. This involves assessing suppliers' current capabilities and then deciding if and how they need to improve them. Thus, one of the key activities in supplier management is supplier evaluation, or determining the current capabilities of suppliers.

18. Why don't firms just buy out their suppliers and industrial customers, forming conglomerates, instead of practicing supply chain management?

Ans.: This is the "old way"—to control the supply chain. This is probably not a good idea any longer, since it detracts and takes time away from what the firm does best. Since competition is continually increasing, this would be an unwise strategy, unless it was the ONLY way to

assure a continued source of supply for instance.

19. What is demand management and why is this an important part of supply chain management?

Ans.: Demand management is when management tries to match demand to available capacity, either by improving production scheduling, curtailing demand, using a back-order system, or increasing capacity. In a recent survey of supply chain managers, stockouts were considered the most pressing issue in the use of demand management activities, followed closely by excess inventories and long lead times.

20. What is the difference between an MRP system and an ERP system?

Ans.: MRP systems are the older materials management system software applications, and are used for essentially basic assembly and purchase decisions. ERP systems came about a number of years later and tied all of a company's geographically distant units together by having one central database to track system inventories.

21. What role do information systems play in supply chain management? Give some examples.

Ans.: Information systems play very important roles in most supply chains. They give supply chain members information visibility, tracking capabilities, and quick communication capabilities.

22. Briefly describe the terms *lean* and *Six Sigma* systems.

Ans.: Lean refers to low waste and inventories and used to be referred to as JIT. Six Sigma originated at Motorola and refers to a quality management philosophy.

23. What are 3PLs and what role do they play in SCM?

Ans.: Third-party logistics service providers; These allow firms to concentrate more on their capabilities while allowing 3PLs to perform logistics activities like delivery and storage.

24. What is logistics? What is the objective of logistics?

Ans.: Logistics is the movement and storage of raw materials, work-in-process, and finished goods. The objective is to deliver products to customers at the right time, quality, and volume which requires a high level of planning and cooperation between the firm, its customers, and the various logistics elements or services employed (such as transportation, warehousing, and break-bulk or repackaging services). In contrast, services are produced and delivered to the customer simultaneously in most cases, so services are extremely dependent upon server capacity and successful service delivery to meet customer requirements.

25. What tradeoffs must be considered in designing a distribution system?

Ans.: Logistics decisions typically involve a trade-off between cost and delivery timing or customer service. Motor carriers (trucks) for example, are more expensive to use than rail carriers, but offer more flexibility and speed, particularly for short routes. Air carriers are even more expensive but much faster than any other transportation mode. Water carriers are the slowest but are also the least expensive. Finally, pipeline transportation is used to transport oil, water, natural gas, and coal slurry. Many transportation services offer various modal combinations, as well as warehousing and customs-clearing services.

26. What are the advantages and risks involved with global supply chains?

Ans.: Some of the advantages include a larger market for products, economies of scale in purchasing and production, lower labor costs, a supply base of potentially cheaper, higher-quality suppliers, and the generation of new product ideas from foreign suppliers and employees. Some of the risks include fluctuating exchange rates affecting production, warehousing, and purchasing and selling prices; government intervention or political instabilities causing supply disruptions; security concerns; and potential changes in subsidies, tariffs and taxes.

27. What does *process integration* mean? Can supply chain management succeed without it? Why or why not?

Ans.: This refers to collaborations which occur between suppliers and buyers in a supply chain. Working together is what allows supply chains to be effective. Processes in a supply chain are said to be integrated when members of the supply chain work together to make purchasing, inventory, production, quality, logistics, and other decisions that impact the overall profits of the supply chain. If one key process activity fails or is performed poorly, then the flow of goods moving along the supply chain is disrupted, jeopardizing the effectiveness of the entire supply chain. Successful supply chain process integration occurs when the participants realize that effective supply chain management must become part of each member's strategic planning process, where objectives and policies are jointly determined based on the end consumers' needs and what the supply chain as a whole can do for them.

28. Why are performance measurement systems important when trying to manage supply chains?

Ans.: Performance measurements must be utilized along supply chains to help firms keep track of their supply chain management efforts. It is crucial for firms to know whether certain strategies are working as expected—or not—before they become financial drains on the organizations. Firms work together to develop long-term supply chain management strategies and then devise tactics to implement these strategies. Performance measurements help firms decide the value of these tactics and should be developed to highlight performance within the areas of purchasing, operations, logistics, and integration.

29. What is back-shoring or near-shoring, and why is this happening today?

Ans.: A number of concerns have many company executives considering moving their foreign production back home or close to home, referred to as **back-shoring, near-shoring, or right-shoring**. Volatile fuel costs, a desire to reduce delivery times and hence improve on-time

capabilities, and the decreasing labor cost differentials when comparing labor costs in China, India, and the U.S. have all contributed to this trend. Some of these firms have also found that demand in their foreign markets is contracting, or their foreign suppliers have gone out of business. Further, security concerns are growing in many foreign markets, prompting a concern that it might be time to concentrate on doing what the firm does best, back in its domestic market.

30. How would you define supply chain risk? Provide an example not listed in the textbook.

Ans.: Supply chain risk can be defined as the likelihood of an internal or external event that causes a disruption or failure of supply chain operations, causing potential reductions in service levels, product quality, and sales, with an increase in costs. Examples will vary.

31. Describe supply chain visibility and why supply chain managers like it.

Ans.: Supply chain visibility can be defined as the ability of suppliers, manufacturers, business partners, and customers to know exactly where products are, at any point in the supply chain. This inventory visibility is obviously made easier by technology, and can prove very advantageous when dealing with disruptive events like hurricanes or other unexpected events.

Appendix 1.1 The Beer Game

Questions and Exercises

1. All players but the retailer should answer this question. What do you think the retailer's customer demand pattern looked like? How did your customer orders vary throughout the game?

Ans.: Varies. Hopefully, their guesses will be nothing like the relatively constant demand pattern actually experienced by the retailer.

2. What happened to the current inventory levels as we move backward, up the supply chain from retailer to manufacturer? Why?

Ans.: The inventory levels should magnify or explode as we go back up the supply chain, as members try to fill ever-increasing orders from customers. This is due to the bullwhip effect.

3. How could the supply chain members reduce total inventory and back order costs in the future?

Ans.: Through closer, more timely and accurate communications.

4. Go to <http://beergame.lim.ethz.ch/> and try playing the Internet version of the game. Report on your experiences playing the game.

Ans.: Students may have difficulty downloading the software necessary to play the game. If possible, try playing it first prior to assigning this question to the class.

