Supply Chain Logistics Management 5th edition Bowersox Solutions Manual

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SCLM 5th Edition End of Chapter Questions and Answers

Chapter One: 21st Century Supply Chains

Study Questions

1. **Compare the concept of a modern supply chain with more traditional distribution channels. Be specific regarding similarities and differences.**

Traditional distribution channels typically had an order fulfillment time of 15-30 days. However, if something went wrong, this time could increase dramatically. It was a common practice to maintain inventory at every stage of the supply chain like retailers, wholesalers, and manufacturers. The market was characterized by scarcity to the primary goal of traditional model was to ensure availability of products. However today customers want more options in product offerings. Modern supply chain is geared towards meeting the changing consumer needs. Transportation capacity and operational performance has become more reliable and economical. Logistical systems are capable of capable of delivering products at exact times. So, customer orders can be fulfilled faster. With massive development in information technology, the need to maintain inventory has reduced dramatically. The occurrence of failures, characteristics of traditional supply chain, has been replaced by a commitment towards zero-defect of six sigma performance. In essence a high level of performance is achieved at a lower total cost with commitment of fewer financial resources than that in the past.

2. **What specific role does logistics play in supply chain operations?**

Logistics is the primary conduit of product and service flow within a supply chain arrangement. It is the work required to move and to position inventory throughout a supply chain. It is a combination of order management, inventory, transportation, warehousing, material handling and packaging as integrated throughout a facility network. Logistics is essential for effective supply chain connectivity.

3. **Describe and illustrate an integrated service provider. How does the concept of integrated service provider differ from traditional service providers, such as for-hire transportation and warehousing?**

Integrated Service Providers (ISP) also known as third-party logistics providers offer a range of logistics services that includes all work necessary to service customers. With the regulatory changes in transportation the traditional logistics services providers started offering warehousing and shared transportation services. The ISPs initiated the radical shift from single function to multifunction outsourcing. Their services include order entry to product delivery and in certain situations they also provide wide range of value-added services. For example, United Parcel Services (UPS) stocks Nike shoes and warm-ups at its Louisville warehouse and processes orders hourly. All the related communication and financial administration are handled by a UPS call center in San Antonio. Therefore, UPS handles the basic logistics and value-added services for Nike.

In contrast the traditional service providers, such as for-hire transportation and warehousing specialize in specific functions. For instance, the for-hire transportation industry consists of carriers who specialize in moving products

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between geographic locations. The companies offering warehouse services are traditionally called public warehouses and they provide storage supplemented by specialized services.

4. **Compare and contrast anticipatory and response-based business models. Why has responsiveness become popular in supply chain collaborations?**

Anticipatory and response-based business models are the two ways used by firms to fulfill customer requirements. However, the fundamental difference in the two models is timing

The **Anticipatory model** has been the traditional business practice, which was mainly forecast driven. Since information about purchasing behavior was not readily available, and the channel partners were loosely collaborating, businesses were driven by forecasts. However, the forecasts used by the manufacturers, wholesales, distributors, and retailers were often different resulting in excess inventory in the system. All the work was performed in anticipation of future projections, so the likelihood of misgauging customer requirements was very high. In addition, each firm in the chain duplicated the anticipatory process.

The **Response-based model** aims to reduce or eliminate forecast reliance by joint planning and rapid exchange of information between supply chain partners. This model is possible because managers can now obtain and share accurate sales information more quickly. Consequently, customers can be provided with their desired items faster. This model requires fewer steps and therefore less cost to complete fulfillment compared to the anticipatory model. A Response-based model is similar to a build to order model however the former has a faster response time and allows higher degree of customization.

Responsiveness propelled by information technology development has become the cornerstone of today's supply chain collaboration. Higher responsiveness can not only increase the level of customer satisfaction but can also reduce the overall cost of doing that.

5. **Discuss five non-traditional supply chain applications and describe the similarities and differences between traditional supply chain applications**

Students can choose from numerous non-traditional supply chain applications as presented in Table 1.2. Similarities could be the inclusion of similar supply chain activities, however differentiated for the very specific application. For example, a construction supply chain still includes concepts such as procurement and logistics, however it is hyper specialized to emphasize just in time delivery performance to keep construction operations moving and not dwell product or cash, for undue periods of time. Each example will combine traditional supply chain elements with modifications specific to the application and goal of the given supply chain.

6. **Describe how one of the consumer disruptors and one of the technology disruptors will impact supply chain design and strategy?**

Students could choose the following disruptors: (1) "want it now" mentality (2) personalization (3) millennial preferences (4) omni-channel shopping or (5) aging consumer needs. Technology disruptors include: (1) autonomous vehicles and the internet of things (IOT), (2) artificial intelligence (3) Uberization (4) 3D printing (5) big data (6) alternative fuels. Answers should focus on how these consumer preferences and technologies will impact traditional supply chain strategies such as manufacturing, procurement, and logistics. In particular, answers should focus on how the consumer preferences and technology will change the decision. For example, consumers with a "want it now" mentality require a supply chain with inventory positioned closer to the end consumer and/or expedited transportation capabilities and capacity.

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Challenge questions

1. **What are the operating challenges related to a brick-and-mortar retail toy stores plan to establish 600 temporary or pop-up seasonal retail outlets? Be specific concerning the supply chain challenges leading into, during, and after the Christmas selling season.**

There are several challenges when a brick and mortar retailer establishes temporary retail outlets.

Staff: First, recruiting temporary staff and training the staff to meet the customer service requirements of the toy store may turn into a significant challenge.

Space and location: As these stores are new, they should be located in the places which are easily approachable by customers like malls. Getting space in these places, which are already crowded may turn into a significant challenge.

Inventory: Because of their temporary nature of these outlets, it might be difficult to actually forecast the demand for each of these individual temporary retail outlets, resulting in either stock outs or excess inventories.

Logistics: One of the major challenges is the logistics. As these stores are new, the toy store will need to develop a new distribution system temporarily, which is a substantial challenge. At the end of season, moving all the remaining inventory back is also a big challenge.

2. **Building on your knowledge of the industry, identify and discuss at least one more consumer or industry disruptor that will impact supply chain management.**

Student answers will vary and could include numerous concepts such as total basket home food delivery, multiple delivery options including storage lockers, delivery to trunk, inside the front door delivery, etc. Remind students to challenge what is "possible" today vs. what the near future might hold.

3. **Discuss how reverse logistics can create value?**

In highly competitive markets environments, which we see in many industries, customer service plays a significant role. Reverse logistics plays a significant role in customer service as well as in improving customer perception. In addition to the benefit it provides to customers, reverse logistics also helps company to objectively measure quality of its products.

4. **Building on your insight regarding non-traditional supply chain applications, discuss where else supply chain principles could be applied.**

Student answers will vary and could include concepts like Hospitality or the Restaurant industry, advancements in the medical industry, or in the services industry.

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Chapter 2: Supply Chain Information Technology

Study Questions:

1. **Discuss how supply chain information systems can provide a competitive advantage for the firm?**

Answers will vary but should all focus on the concept of how supply chain information systems can not only assist in the planning, execution, and tracking of activities, but also how sophisticated firms use systems to help facilitate collaboration by sharing information across the supply chain and drive strategy through concepts like big data.

2. **Compare and contrast supply chain transaction management, decision analysis, and strategic planning systems**

Transaction System: characterized by formal rules, produces, and standardized communications, a large volume of transactions, and an operational, day-to-day focus. Major emphasis on system efficiency

Decision Analysis: focuses on software tools to assist mangers in identifying, evaluating, and comparing strategic and tactical alternative to improve performance. Typical analyses include supply chain design, inventory management, resource allocation, transportation routing, and customer segment profitability.

Strategic Planning: Organizes and synthesizes transaction data into a relationship database that assists in strategy formation and evaluation. Focusing on information to evaluate and refine supply chain and logistics strategy. Elements include desirability and scope of strategic alliances, development and refinement of supply chain capabilities, and opportunities related to customer relationship management.

Reference Figure 2.2 for additional information

3. **Describe the benefits provided by Blockchain technology**

Blockchain is a communications technology that facilitates secure communication involving financial and supply chain institutions. Blockchain is a distributed database that maintains digital contents regarding transactions or events that make the records tamper-resistant. While many institutions such as suppliers, manufacturers, distributors, retailers, and logistics service providers may access, inspect, or add to the data, they can't change or delete it. The original information is maintained in a permanent and public information trail, or chain of transactions. Therefore, the benefit of Blockchain technology is the un-interrupted distributed ledger enabling all participants' access to the same information without risk of tamper.

4. **Discuss the role of TMS, WMS, and YMS in Supply chain Execution?**

Transportation Management Systems (TMS), Warehouse Management Systems (WMS), and Yard Management Systems (YMS) are all considered Logistics operations modules. As such they are critical technology elements in supply chain execution. TMS systems offer functionality including: 1) building loads from multiple orders 2) identifying possible carriers 3) maintaining database of shipments rates 4) determining shipment mode and route, 5) providing documentation to select product to ship and stage in the warehouse 6) Developing documentation for shipment and (7) tracking the order while in transit and finally (8) transferring information to accounts receivables. The WMS system functionality includes (1) shipment receipt (2) product storage and put away (3) product retrieval from storage locations (4) product staging for shipment and (5) initiation of value-added

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activities such as packaging, labeling, or other forms of customization. The YMS system functionality includes the management of trailer and or rail cars in the firms outside storage area. It can also be used to schedule appointments.

5. Discuss the role of Supply Chain event management systems in supply chain competitiveness

Consumers today expect to have visibility of a given orders status at any given time. Supply Chain event management systems help fulfill this process. Supply chain visibility and event management software track shipments while they are in transit and are increasingly capable of proactively suggesting changes in supply chain flows to minimize the potential of manufacturing shutdowns or service failures. As such, a firm with advanced event management systems can proactively identify opportunities to modify their execution plan thus providing superior customer experience.

Challenge Questions:

1. **Discuss how Blockchain and tracking systems provide value to a firm's customers**

Blockchain provides value to a firm's customers by verifying the authenticity of the product being purchased or consumed. While there are numerous industries that are challenged by counterfeiting, raw materials falsifications, and theft for resale, the firms that face the most significant challenges are those involved in high-value branded goods, repair parts for durable items, health care supplies, alcohol, and pharmaceuticals. In all cases the combination of high dollar value / high risk associated with the goods combined with the relative ease of counterfeiting make the ability to track/trace and verify the authenticity of the product paramount.

2. **How do the concepts of SaaS and cloud computing differ from the services offered by traditional data processing service centers?**

SaaS (Software as a Service) and Cloud computing is a major step in current computer and software industry in turning into utilities. SaaS helps the small company's helps small companies to access the software, which is very expensive otherwise. The other major advantage is that these firms are typically charged based on their usage rather than a fixed purchase price. Similarly, Cloud computing helps small companies to access a substantial amount of computing power and space at a significantly lower costs and pay as per their usage. The other major advantage with SaaS and Cloud computing will cost significantly less when compared with traditional data processing options, This feature helps not only small firms but also large firms who desire to try new technical advances without significant capital investments

3. **Compare and contrast a firm having its own information systems, cloud computing, and software as a service**

Students should first identify the elements to use in comparative analysis: Items should include:

- Up front or capital cost
- Ongoing variable cost
- Systems flexibility
- Systems security
- Product Lifecycle / Shelf Life
- Firms' capability to manage/support product
- Customized nature of the firms' requirements (generic vs. highly customized)

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The student should then evaluate each solution against these key variables. For example a firm having it's "own systems" would include a higher up front/capital cost, potentially more or less flexibility, definitely higher security, a defined product depreciation/lifecycle and the ability to highly customize. How would this differ from software as a service? Also probe for how the industry has changed in the last 10, 5, and 1 years?

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Chapter 02 - Quiz

Multiple Choice Questions

1. The middle of supply chain information systems (SCIS) framework is which of the following?

A. Enterprise resource planning.
B. Enterprise planning and monitoring.
C. Enterprise integration and administration.
D. Financial operations and reporting.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Remember
Difficulty: 1 Easy
Gradable: automatic
Topic: Supply Chain Information System Modules

2. Which of the following modules is included in enterprise integration and administration?

A. Supply chain compliance.
B. Logistics.
C. Customer accommodation.
D. Human resources.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Remember
Difficulty: 1 Easy
Gradable: automatic
Topic: Supply Chain Information System Modules

3. Which of the following is not a way to change process capacity?

A. Increase demand.
B. Increase yield.
C. Increase utilization standards.
D. Improve efficiency processes.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Understand
Difficulty: 2 Medium
Gradable: automatic
Topic: Information System Functionality

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4. Which of the following is not a way to expand process capacity?

A. Improve layout.
B. Break bottlenecks.
C. Reduce variation.
D. Increase labor pay.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Understand
Difficulty: 2 Medium
Gradable: automatic
Topic: Information System Functionality

5. Which of the following changes in operations will aid in increasing fixed asset utilization?

A. Increase up-time.
B. Improve scheduling.
C. Reduce change-overs and set-up time.
D. All of the answers.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Understand
Difficulty: 2 Medium
Gradable: automatic
Topic: Supply Chain Information System Modules

6. Which of the following modules is/are not included in Enterprise Operations?

A. Customer relationship management.
B. Manufacturing.
C. Accounts receivable and payable.
D. Inventory deployment.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Understand
Difficulty: 2 Medium
Gradable: automatic
Topic: Supply Chain Information System Modules

7. Which of the following supply chain information system modules has a major influence on supply chain system capacity?

A. Warehousing.
B. Order entry.
C. Inventory planning.
D. Transportation.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Understand
Difficulty: 2 Medium
Gradable: automatic
Topic: Supply Chain Information System Modules

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8. Which of the following supply chain information systems modules provide the interface between capacity and transaction volume?

A. Inventory management.
B. Order entry.
C. Inventory control.
D. Manufacturing resource planning.

AACSB: Reflective Thinking
Accessibility: Keyboard Navigation
Blooms: Understand
Difficulty: 2 Medium
Gradable: automatic
Topic: Supply Chain Information System Modules

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Chapter 02 - Quiz Summary

Category	*# of Questions*
AACSB: Reflective Thinking	8
Accessibility: Keyboard Navigation	8
Blooms: Remember	2
Blooms: Understand	6
Difficulty: 1 Easy	2
Difficulty: 2 Medium	6
Gradable: automatic	8
Topic: Information System Functionality	2
Topic: Supply Chain Information System Modules	6

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Case 1

Integrated Logistics for SES/BAG

Overview

This case finds Maxwell Stevens sales representative for Specialty Engineering Services (SES), in a situation common to today's competitive sales environment. His company, as a supplier to a major manufacturer Boston Aerospace Group (BAG), is faced with changing times. BAG is in the midst of a "changing of the guard" as Mr. Steven's long-time contact, Nathan Benson, retires. Benson's successor, Tyler Pinto, brings a new set of supplier expectations to the fore of BAG's purchasing strategy. Over the years, the quality of competitors' products began to match SES. Firms now compete based on logistics quality. To keep the BAG business, SES must improve its logistical performance to meet the customer's rising expectations.

The textbook illustrates a concept called the "shrinking service window." The idea behind the shrinking service window is that customers have begun to expect higher levels of service (higher fill rates) in less time (shorter order cycles). In BAG's case, a change in leadership is responsible for the new, higher expectations. The change, however, is indicative of the realization that logistics has become a strategic weapon. The case illustrates that SES must either match competitors' service or face losing a major customer.

Solutions to Questions

1. A diagram of the SES-BAG supply chain is provided on the next page.

Stages that are adding value:

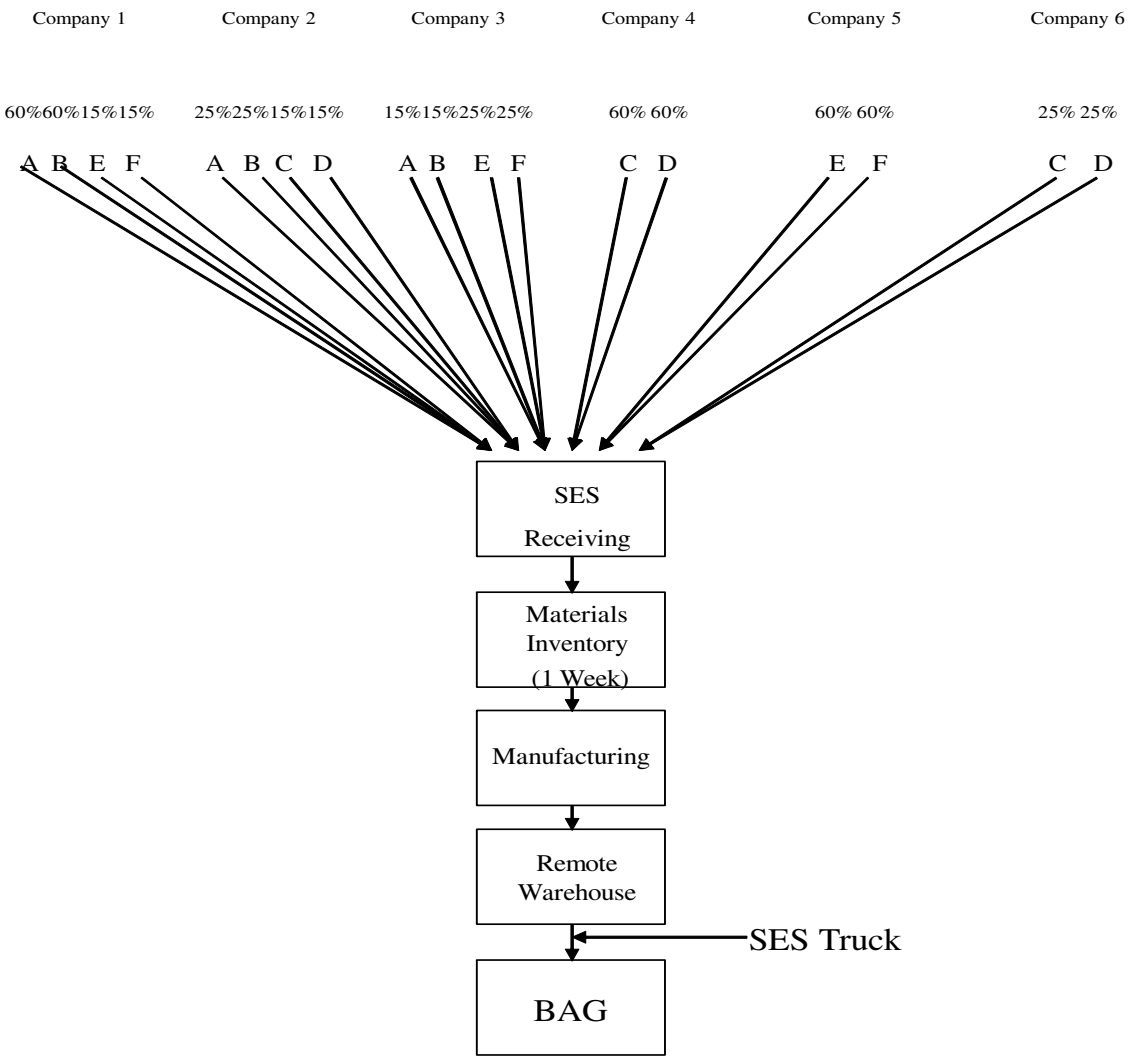
- Inbound transportation from the suppliers
- SES packaging
- manufacturing
- product delivery

Stages that are not adding value:

- "dwell time" at the remote warehouse
- matching orders to paperwork
- materials receiving
- materials inventory

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SES-BAG supply chain



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2. Minimum order cycle time: 8 days

Maximum order cycle time: 25 days

3. Yes, it appears that the performance cycle can be improved through the use of 25% and 15% suppliers. For example, Company 2 offers better service levels and less variability than Company 1. Using more reliable suppliers may result in higher prices on materials but this can be mitigated by reducing SES's material inventories. Greater certainty on the part of suppliers reduces the need to maintain high stocks of inventory.

4. This is a question of opinion. People's resistance to change should be considered. In particular, manufacturing personnel will be tough to convince due to past experience.

5. The means of "selling" the idea to Mr. Pinto is matter of opinion -- more of an art than science. Regardless of the specific effort, it should demonstrate why Pinto should keep BES as a core BAG supplier. This will involve conveying clear guidelines for making the desired service improvements while maintaining a competitive price -- providing Pinto with the value he demands.

Below are samples of "Qualifying" and "Order winning" criteria.

"Qualifying criteria"

1) Good product quality

2) Competitive price

3) Service capability that exceeds the minimum standards

"Order winning criteria"

1) Consider changes that demonstrate that SES is practicing the very service expectations that Pinto is trying to implement. This would illustrate SES's conceptual understanding of Pinto's ideas.

2) Position BAG for electronic data interchange (EDI) or other asset- and information-sharing processes. EDI would allow Pinto with "real time" information from SES. These investments also help to solidify relationships.

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These criteria will likely change over time. The shrinking service window illustrates how customers continue to expect more until eventually service approaches 100% fill rates and very short performance cycles.

This case suggests that supply chain management increases in sophistication with higher levels of performance. Unless these areas of improvement are addressed, supplying firms will be left behind as competitors strive to meet customers' ever-changing needs.

Case 2

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Woodmere Products: Time Based Logistics at Work

Overview

From Woodmere's perspective, the HomeHelp partnership offers substantial rewards, but at a price. This case demonstrates the all-encompassing change that is sometimes required for a firm to maintain long-term competitive success. Change is very difficult to achieve in organizations large and small. Laborers, managers and executives alike establish "comfort zones" that are difficult to break. The case follows John Smith as he first studies the potential benefits of refocusing production and logistics strategies before promoting the idea to top management.

Solutions to Questions

1. As the supplier, Woodmere is faced with the ultimatum of effecting the change (implementing the time based service strategy) or losing the HomeHelp business. To implement the time based strategy will require new approaches to production and logistical operations as well as significant, constant investments in technology. The changes are likely to affect the way Woodmere conducts business with other customers and channel participants (suppliers, transportation providers, etc.).

As the customer, HomeHelp has issued the ultimatum to Woodmere Products. However, should Woodmere elect to turn down the opportunity, HomeHelp will have to look elsewhere for products and service.

Though the issue is open to debate, it seems that both firms stand to benefit from the time based strategy. Both firms stand to gain potential competitive advantages by being the first in their respective industries to adopt time-based logistics practices. Ideally, alliances should create synergy, where the dynamics of the whole is greater than the sum of the parts -- both firms succeed at levels unachievable when alone. As noted above, significant investment is required of each firm to see the strategy reach fruition.

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2. **WoodmereProducts**

Benefits

- An exclusive relationship with HomeHelp that ensures generous revenues well into the future.

- The time based strategy may create competitive advantage that carries over into other business.

- Replacing inventory with information improves customer service and can lower costs.

Barriers

- The generous revenues derived from the HomeHelp relationship will require significant change and investment. The very nature of the potential competitive advantage offered by the time based strategy is that it is unique -- no one in the industry is doing it. Therefore, the challenge of figuring out how to implement the strategy effectively rests with the first mover, requiring trial-and-error efforts and investment. Change is almost always difficult to implement.

- The failure experienced with Happy Home & Living plagues future close relationships.

- Management's belief that the "additional cost" of providing service to HomeHelp will be pushed on to other customers.

HomeHelp

Benefits

- Reduced inventories in regional warehouses.

- Improved service from Woodmere that translates into better service delivered to HomeHelp customers in terms of availability, and quality.

Barriers

- The time based strategy will require commitment and investment. The time and resources required to implement such momentous change between two channel partners is substantial.

- Investment in technologies is required upfront and throughout the relationship.

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3. Suggestions may include but are not limited to:

- Reduce the role of the distribution centers. Direct shipment from the manufacturing facility would be most effective, reducing the time spent intransit and eliminating the sorting process at the distribution center. This would also reduce Woodmere's inventory holding investment significantly.

- Deliver incomplete orders when necessary rather than holding up the order at the distribution center until complete.

- Include HomeHelp's in-stock figures in data that is transmitted daily. In addition, more frequent data transmission may be worthwhile.

- The purpose of the central information service may be in question though little is said about it. It would be worthwhile to determine the role to transportation as well.

- To achieve competitive advantage is difficult. Once it is achieved, however, it should be fully exploited to benefit the firm. Perhaps Woodmere should develop the time based strategy to serve all customers.

4. There is no clear-cut determination of right and wrong in this question. Students should assume a position on one side of the issue and justify their decisions with well-supported arguments. Discussion should encompass advantages/disadvantages of the proposal with any suggestions for change.

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