



INDIAN INSTITUTE OF MATERIALS MANAGEMENT

Dec 2016

Post Graduate Diploma in Materials Management

Paper 17

ADVANCED SUPPLY CHAIN MANAGEMENT

Date: 17.12.2016

Max. Marks 100

Time: 2.00 p.m. to 5.00 p.m.

Duration 3 hours

Instructions

1. The question paper is in three parts
2. Part A is compulsory. Each sub question carries one mark.
3. In Part B answer any 3 questions out of 5. Each question carries 16 marks
4. Part C is a case study with sub questions and it is compulsory.

Total marks-32

Total marks-48

Total marks-20

PART A

(1 x 32 = 32 marks)

Q. 1. Fill in the blanks.

- a) Customers and retailers are stages of a _____.
- b) Supply chain flows within the _____ are the internal supply chain.
- c) Movement of physical products to customers is _____.
- d) Customer orders initiate a _____ process and a _____ process is performed in anticipation of a customer order.
- e) The performance cycle reflects the _____ and _____ requirements.
- f) An annual sale to average annual inventory is _____ ratio.
- g) If the forecast is wrong it is difficult to match the _____ and _____.
- h) Aggregation of demand across locations leads to _____.
- i) _____ states that 80% of a nations' wealth is held by 20% of the population.
- j) When the shipment is directly from the supplier to retail stores it is _____.
- k) RSP means _____ partnership.
- l) A fast and high volume channel for movement of information is _____.

Q. 2. State True or False

- a) Supply chain strategy is important for supply chain integration.
- b) Average production lot size is the measure of flexibility.
- c) The primary goal of purchasing is to ensure uninterrupted flow of raw materials.
- d) Agency law regulates commercial transactions.
- e) Costs of developing requirements and specifications are planning cost.
- f) In e-commerce new models of collaborations with customers and suppliers are not created.
- g) In cross docking goods are not entered in a warehouse.
- h) Chip-based RFID tags contain silicon chips and antennae.
- i) Cost of making and delivering the product to the customer is supply chain efficiency.

- j) In speculative strategies a firm takes risk using multiple scenarios.
- k) Supplier selection is outside the purview of the procurement cycle.
- l) In cost focus, a firm seeks a cost advantage.

Q. 3. Match the following:

A	B
1. FSND, ABC, Golf	a. Commercial Tax
2. Decision analysis	b Information functionality
3. Formal supplier integration	c. Differentiation strategy
4. Third party logistics	d. Inventory classification methods
5. Product dimension uniqueness	e Grey Box
6. Informal supply integration	f White Box
7. Automatic identification method	g. Focus on core strength
8. Excise duty	h. RFID

PART B

48 marks

(Answer any three. Each question carries 16 marks)

- Q4.** a) Explain topology of supply chain with suitable examples.
b) Explain the push/pull view of the supply chain for a retail network.
- Q5.** a) Discuss the key issues in supply chain management.
b) What is the performance cycle? How the cycle time can be reduced?
- Q6.** a) Explain the relationship between the service level and inventory level.
b) Explain the pros and cons of centralized and decentralized systems.
- Q7.** a) Discuss in detail the data requirement on the logistics network configuration.
b) Explain different strategies that impact supply chain performance.

Q.8. Write Short Notes any four.

4 x 4 = 16 marks

- A) Satellite Communication
- B) Geographical Information Systems
- C) Electronic Data Interchange
- D) Cross Docking
- E) Supplier Selection

PART C

20 marks

Q.9 Case Study (compulsory)

In today's competitive environment, a company's performance does not depend upon its capabilities alone. In the past decades, what had increased was: outsourcing, supply base reduction and consolidation. This has increased the reliance of buyers on their suppliers and has become the popular manufacturing strategy for companies. It is because of the increased dependence, that how main suppliers perform once in terms of quality, delivery, costs and services, affects the buying company's performance. For instance, part shortages contributed to long production delays for Boeing's 747 and 737 airplanes and a resulting loss of over \$1 billion. Therefore, it is critical for a successful firm to understand a supplier's capabilities and performance potential.

As the fourth-largest automaker in the world, "Toyota is committed to continuous improvement, looking forward to new tomorrows. Built-in car navigation system is getting more popular all around the world since it can provide a more convenient and safer environment for drivers. The aggregation of mapping data, for the navigation systems from Denso, is now available in almost every Toyota model in the UK." (www.toyota.co.uk) Toyota's navigation system supplier: "Denso, a \$16.2 billion Japanese corporation, is the fourth largest independent automotive component supplier in the world. Denso's vehicle navigation systems perform complex spatial data processing and were used by car manufacturers such as Toyota, Jaguar and Cadillac." (www.denso.co.uk) Moreover, Toyota is not the only buyer of Denso; but Denso is the only navigation supplier to Toyota.

Navigation system in Denso Denso was established on December 16, 1949, and is a global supplier of advanced technology, systems and components. Denso employs 85,000 people in 27 countries worldwide. (<http://www.globaldenso.com>) Denso, launched its first navigation system in 1987, and is one of the few companies in the world that develops global vehicle navigation systems and supplies them to automakers in Japan, Europe and North America. Denso's intelligent transport system products and services, represent the three aspects of technology: "sensing and communication between vehicles-adaptive cruise control; communication between vehicles and the highway infrastructure-electronic toll collection system, and communication between vehicles and the global telecommunications grid-telematics car navigation, fleet management system". (<http://www.globaldenso.com>)

Toyota was established by Sakichi Toyoda in 1918 and the net revenues of Toyota in 2002 was \$4,316,874 millions. As far as Toyota (GB) PLC is concerned: "it is the importer and distributor for Toyota vehicles in the UK and is responsible for sales, marketing, after-sales and customer satisfaction. Sales are managed throughout England, Wales, Scotland and Northern Ireland by a network of over 252 Toyota dealers. The statement of Toyota (GB) PLC is: 75% of vehicles produced in the UK are exported to Europe, 20% are sold in the UK and 5% are exported to the rest of the world." (www.toyota.co.uk)

In summary, companies benefit from placing a larger volume of business with fewer suppliers using long-term contract. Furthermore, "through a well-developed long-term relationship, a supplier becomes part of a well managed supply chain which will have lasting effects on the competitiveness of the entire supply chain." Denso is the main and the only navigation system supplier of Toyota and they have been in cooperation together for a long time. In addition, the relationship between Toyota and Denso is stable and

reliable. JIT system in Toyota reveals the buyer-seller linkage which epitomizes a small supplier scale and long-term relationship.

Recently, Toyota officials described a “next-generation just-in-time logistics system” and computer software that allows planners to create a “virtual production line” as key factors in the company’s compressed manufacturing cycle time. Parts are delivered to assembly lines 24 times each day, on average, in small lots, by trucks that run fixed routes to several suppliers on each trip. To make its suppliers work more efficiently, new technology should be implemented in Toyota. Although Toyota set its parts orders on the Web which can save time and administration fees, it is never enough. Since the internet field is very mature now, Toyota can connect or even control its suppliers through the internet. For instance, Toyota’s managers can get the latest information from Denso and give some feedback immediately. The time lag will be minimized through this internet system. Moreover, Toyota drivers can use this system to check the working process of their vehicles. Observably, this can let Toyota manage its supply chain and customer services effectively and efficiently.

The challenge for Toyota in next decade will be to balance the benefit of supply chain management with the need to connect new suppliers. The system that Japanese companies use is: buying companies often own a certain amount of shares in suppliers. This system might cause too close a relationship between buyers and sellers in order to get the best deal. Toyota also has this sort of problem and has to find out the solution by getting new and competitive supplier. The quality of China’s navigation system suppliers, for example, might be too poor to meet Toyota’s level. But, in two or three years, the navigation systems which are made in China will be very attractive: not only with good quality but reasonable price. Defiantly, this change will happen, because Japan had gone through the same evolution process. If China’s quality improves then, Toyota must consider the possibilities of buying its navigation systems from other better suppliers rather than staying with Denso.

Questions:

1. Discuss the major initiatives associated with the supply chain of the company.
2. What are the strategies that you would suggest to the company to become proactive in ensuring supply chain efficiency?
