UNIT 17 FUTURE TRENDS AND ISSUES

Objectives

After reading this unit, you would be able to:

- discuss the trends and issues in the management of supply chains in the future;
- discuss collaborative strategic alliances for enhancing supply chain effectiveness;
- discuss about importance of outsourcing services like third and fourth party logistics;
- describe integrating supply chain logistics through the use of IT and the Internet;
- discuss green supply chain strategies like reverse logistics; and
- portray a vision of deploying world-class supply chains in the future.

Structure

17.1 INTRODUCTION

Management of the supply chain has evolved over the last two decades from an emphasis on integrating logistics and lowering cost to providing better products and services that provide value to ultimate customers. Managing uncertainty and understanding customers in the global market is the challenge that current supply chain systems are facing the world over. Efforts are being made to manage demand flow, supplier collaboration and customer services using cutting-edge information technology.

Traditionally, the focus of companies has been on the intra-organizational flows over which the organization had some control. However, companies are increasingly recognizing that supply chain management involves the management of the complete chain starting from inbound logistics, processing, outbound logistics, marketing and sales, customer service and also reverse flow of unused materials and waste for successful value reclaimation through reuse, remanufacturing and recycling etc. This

involves a large and complex network of suppliers, transporters, manufacturers, distributors and customers. Successful supply chain flow requires synchronization of operations through effective collaboration among the various channel players.

Organizations must provide world-class services to remain profitable and continue serving the society in an effective manner in the ever-changing and turbulent market space. The following sections are devoted to a discussion of the issues and trends that supply chains are likely to adopt in times to come.

17.2 COLLABORATIVE STRATEGIES

In the future, supply chains must embark upon a collaborative strategy to manage demand flow and customer satisfaction through technology integration. Collaboration enables channel partners to jointly gain a better understanding of product demand flow and implement effective programs to satisfy customers through collaborative product development, synchronized production scheduling, collaborative demand planning and logistic solutions.

Effective collaboration among channel partners can help in aligning them to enhance the value of the integrated activities in the supply chain. This can contribute to faster product development through shared design development and modification documents. It can also contribute to synchronization of production and delivery schedules and smoothen the material flow process obviating inventory management problems. This can result in better capacity utilization, order fulfillment and customer satisfaction.

Down-stream collaboration with distributors, wholesalers and retailers can result in real-time flow of point-of-sales (POS) data across the supply chain. This can help in jointly formulating effective forecasting and replenishment schemes and smoothen demand variations along the supply chain. One of the crucial objectives of manufacturers is to meet in orders to reduce losses on account of inventory excesses or shortages. Collaborative forecasting strategy involving all channel partners can contribute to effective demand planning. Each partner in the supply chain should be able to plan demand based on a single, reliable source of demand data. However, this can be possible through seamless data interchange among channel partners.

Reducing channel inventory pileups by reducing demand irregularities in the supply chain is an issue of primary concern as it can lead to improved efficiencies and lower cost. This can be tackled through collaborative efforts made through strategic partnerships (SP) or strategic alliances (SA). Retailer-Supplier Partnerships (RSP), Vendor Managed Inventory (VMI) and Distributor Integration (DI) are examples of strategic alliances that can prosper through collaborative efforts. Such strategic alliances can help both partners by:

- Adding value to products through collaborative efforts.
- Improving market access.
- Strengthening operations by lowering costs and cycle times.
- Increasing technological strength and flexibility
- Enhancing strategic growth by pooling the combined expertise of partners
- Enhancing organizational competencies through mutual learning.
- Building financial strength by sharing costs and eliminating non-value added activities among partners.

Collaboration can also enhance the logistics function in the supply chain. Transporters can better organize inbound, inter-facility and outbound transportation to optimize capacity utilization. Collaboration with third party (3PL) and fourth party (4PL) logistics organizations can also enhance supply chain effectiveness. Sustainable supply chain configurations can be established by trading off cost, revenues, profits, market share and adaptability to new products and technologies through a collaborative approach.

17.3 VENDOR MANAGED INVENTORY (VMI)

VMI has been recognized as an effective strategy for combating irregularities in the supply chain caused due to demand variability. In this system, the vendor plays an intermediate role between the manufacturer and the wholesaler/retailer. The vendor collects point-of-sales (POS) data from the wholesaler/retailer and accordingly plans their demand from manufacturers in order to manage the wholesaler's inventory. This eliminates the wholesaler's/retailer's need for dual buffering against customer demands on one hand and supply disruptions on the other. In fact, by adopting a process of just-in-time or continuous replenishment, the inventory can be reduced to a bare minimum, thereby lowering both risks and costs.

Vendors are in an excellent position to manage inventory for the wholesaler/retailer because they are a middle link in the supply chain and can track the needs both from the supplier's and the customer's ends. Since the supplier/vendor understands his/her own product better than anyone else, they can handle the replenishment needs of the retailer who has to otherwise keep track of numerous products. The buyers' role of creating purchase orders from sales and supply forecasts is eliminated as the vendor does handle this on behalf of the wholesaler/retailer. The buyers' role becomes one of assessing the recommendations made by the supplier and providing adequate aggregate data and insightful information while collaborating on sales/demand forecasts. Once VMI has been implemented, customers can benefit from 30 to 40 per cent reductions in inventory and 75 percent forecast accuracy.

When the supplier plays the role of a vendor, this strategy is called Supplier Managed Inventory (SMI). This is an offshoot of the Retailer-Supplier Partnership (RSP) that can be used to synergise the flow inventory between the retailer and the supplier. Accordingly, suppliers like Shell, a company manufacturing automotive lubricants etc., integrate customer's forecast, consumption data and inventory information to its own production and shipping capabilities for creating rolling production schedules. This reduces inventory-carrying costs in the supply chain. This way, besides managing the inventory, Shell does not need to pad its own inventory in anticipation of varying demands from its customers. This technique can in-turn be carried upstream to Shell's suppliers. Similarly, Shell's customers can now emulate the strategy and reap benefits accruing out of reduced inventory in the supply chain.

Implementing VMI or SMI can be difficult when the supplier starts accounting for the time and cost involved in managing the inventory. Some customers may not be using computers and may be reluctant to allow suppliers to manage their inventory, if it is a crucial business secret. Moreover, plant managers may be forced to stop production if they stock out and suppliers are not able to replenish them just in time.

However, these problems can be overcome with some patience in understanding customer's and supplier's inventory movement trends and building mutual trust. Since buyers are often trained not to disclose information related to their inventory, enough trust must be built to enable vendors and buyers to share inventory related information. Once inventory flows are understood, the initial implementation cost is well offset by recurring savings in inventory carrying costs and gains through

optimum capacity utilization. For instance, Shell has reported returns of 10:1 on its investment on SMIs.

Since data must be available on-line and is difficult to process manually, it is necessary to use computers if this strategy has to be successfully implemented. Often, suppliers can provide customers with computer hardware and easy-to-use software in order to obtain real-time customer's inventory status that is crucial for preparing rolling production forecasts and schedules. VMI or SMI can also be offered to customers as a value added service and can help in locking-in customers. Once this cost-effective strategy is in place, all channel partners are able to reap rich dividends and extend the strategy to other parts of the supply chain. Third party and fourth partly logistics form some of the other collaborative efforts being evolved towards effective management of supply chains.

17.4 THIRD PARTY LOGISTICS

Third-party logistics (3 PLs) is the use of an outside company to perform all or part of the company's materials management and product distribution functions. The competitive advantage for any company is to focus on their core competencies, and let the 3PL firm handle those supply chain functions in which they specialize. In order to provide truly value-added services, 3PL firms must interact with customers to understand their needs and then adjust their offerings to meet them.

It is obvious that companies can parcel out numerous supply chain processes to entities that specialize in the efficient performance of those processes. Outsourcing a wide array of supply chain processes can generate greater value across the entire supply chain because specialized firms performing the selected processes enjoy a level of expertise and leverage, that would not be available to manufacturers, wholesalers or retailers. Transportation, warehousing, order processing and fulfillment, packaging, labeling, and bill payment are some of the key processes that can be outsourced to specialist firms called third-party logistics firms, or 3PLs. If these firms are efficient and effective, then the entire supply chain can benefit from improved capacity utilization, enhanced service levels and lower costs.

3PLs can provide technological and other flexibility to client companies. For instance, channel partners may need to change their technology for implementing quicker systems. Similarly, they may have changing needs for warehousing and transportation facilities. Such changing demands can be easily taken care of by third-party logistics companies.

Customers of 3PL companies look for four dimensions of value to be derived from outsourcing a process to a 3PL firm. These values include trust, information, capital utilization and cost control. The 3PL's customer orientation, level of specialization, asset ownership status and the price at which the service is offered form some of the main issues that a client will consider while selecting an appropriate service provider.

3PL companies must provide reliable services and solve channel problems so that smooth flow of goods and information can take place. This helps customers to trust 3PL companies.

3PLs can create value for their customers in the accuracy, quality and timeliness of the information that they provide their clients, different channel partners and to ultimate customers. This information can be electronically integrated into the customer's MIS for direct access.

3PLs can help customers reduce inventory and fixed assets, such as buildings and equipment. This leads to better utilization and financial returns on both working and

fixed capital. Although capital utilization is important to 3PL customers, reduction of supply chain costs and sharing the savings with customers is probably the most visible (though not the most important) value.

Each supply chain will have firms with different levels of expertise and 3PL must customize their services according to their clients' expectations. Firms using 3PL services are seeking performance levels where the overall net benefits exceed the amount paid to the 3PL. Improving service-related benefits also produces value, particularly when combined with the reduction of logistics costs. Many CEOs now see this value as critical to business survival.

An important contribution of the 3PL is providing the leverage that its customers cannot generate by themselves via the provision of information, cost reduction activities, service enhancements, or better asset utilization. In addition, by becoming more integrated into its customer's operations, the 3PL will be able to recognize and understand changes in the logistic needs of the customers.

An important disadvantage of third party logistics for companies is the loss of control faced by the company due to out sourcing a particular function. Engaging reliable 3PL service providers can offset this problem. Moreover, 3PL companies can assure their clients of their reliability by integrating their activities seamlessly with latter's operations. Painting clients' logos on transport vehicles etc. can signify close integration between the client and the 3PL service provider.

All channel partners must be successful if meaningful and lasting value is to be achieved. This requires open communication and collaboration. If any element in this supply chain relationship is neglected, the chain is broken and the value is lost.

Activity 1

Explain how a company can select a third party logistics (3PL) firm on the basis of

1) Customer orientation
2) Level of specialization
3) Asset ownership status
4) Price of the service

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Activity 2

Which of the above criteria is most important for a company manufacturing fast moving consumer goods (FMCG)? Why?

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17.5 FOURTH PARTY LOGISTICS

The term "fourth-party logistics provider" is a trademarked term owned by Andersen Consulting. It refers to the evolution in logistics from suppliers focused on warehousing and transportation (third-party logistics providers) to suppliers offering a more integrated and value added solution. Among other services, fourth-party logistics providers include supply chain management and solutions, change management capabilities, and value added services as part of their offering. A 4PL company delivers a comprehensive supply chain solution and adds value by influencing the entire supply chain.

A 4PL leverages a full range of service providers (3PLs, IT providers, contract logistics providers, call centers, etc.) along with the capabilities of the client and its supply chain partners. The 4PL acts as a single point of interface with the client organization and provides the management of multiple service providers through a teaming partnership or an alliance. A 4PL adds value to the entire supply chain, through reinvention, transformation, and execution.

Reinvention implies synchronization of supply chain planning and execution activities across all supply chain participants. This is achieved by:

- Leveraging traditional supply chain management skills,
- Aligning business strategy with supply chain strategy, and
- Creatively redesigning and integrating the supply chains of the participants.

Transformation efforts focus on specific supply chain functions including sales and operations planning, distribution management, procurement strategy, customer support, and supply chain technology. This is done by:

- Leveraging strategic thinking and analysis,
- Process redesign, organizational change management, and
- Technology to integrate the client's supply chain activities and processes.

Execution of the supply chain integration strategy leads to increased revenue, operating cost reduction, working capital reduction, and fixed capital reduction while traditional approaches tend to focus only on operating cost reduction and asset transfer.

Revenue growth and customer satisfaction are driven by enhanced product quality and product availability due to the elimination of stock-outs and 'ship-complete'. Dramatic customer service improvements can be attained as the 4PL focuses on the entire supply chain and is not limited to increasing efficiencies associated with warehousing and lowest-cost transportation. Operating-cost reductions are driven through operational efficiencies, process enhancements and procurement savings. Savings are achieved through the complete outsourcing of the supply chain function instead of only a few components as in the case of a 3PL solution. Savings are also achieved due to the economies of scale that accrue due to the large size of the operations involved in the entire service chain.

Synchronization of supply chain activities by channel partners leads to operating-cost reductions and a lower cost of goods sold, due to integration of processes, and improved planning and execution of supply chain activities.

Technology is proactively used to manage order and inventory movement throughout the pipeline, thereby minimizing the amount of inventory required, and increases item

availability to reduce cycle times. Thus, working-capital reductions can be realized through inventory reductions and reduced "order to cash" cycle times. Fixed-capital reductions result from capital asset transfer and enhanced asset utilization. 4PL's can undertake the ownership of physical assets, thus freeing up assets held by various companies that form part of the supply chain. This allows the client organization to invest in its core competencies like research and design, product development, marketing and sales, etc.

A 4PL can use any of the three operating models to deliver supply chain solutions.

1) A partnership can be forged between the 4PL organization and a third-party service provider to market supply-chain solutions that capitalize on the capabilities and market reach of both organizations**.** The 4PL provides a broad range of services to the 3PL including technology, supply chain strategy skills, capability to go to market, and program management expertise.

2) The 4PL can operate and manage a comprehensive supply chain solution for a single client. This arrangement encompasses the resources, capabilities, and technology of the 4PL and complementary service providers to provide a comprehensive integrated supply chain solution that delivers value throughout a single client organization's supply chain components.

3) As a supply chain innovator, a 4PL organization can develop and run a supply chain solution for multiple industry players with a focus on synchronization and collaboration. The formation of industry solutions provides the greatest benefits; however, this model is complex and can challenge even the most competent organizations.

The 4PL service provider needs to possess a comprehensive set of skills to effectively deliver an integrated supply-chain solution. These include:

- Availability of a large body of trained supply chain professionals, global capabilities, reach and resources.
- Ability to manage multiple service providers.
- Ability to transition clients' employees and other assets smoothly to the new 4PL environment.
- Strong relationship and teaming skills.
- Delivery of world-class supply chain strategy formulation and business process redesign.
- Strength in integrating supply chain technologies and outsourcing capabilities.
- Understanding of organizational change issues.

Fourth Party Logistics is the next generation of supply chain outsourcing. Supply chain activities are information-rich, complex and increasingly global. At the same time, technology and e-enabled capabilities are racing ahead. To enable a firm to capture all the benefits of supply chain collaboration and synchronization, a new generation of integration must be deployed, which is currently beyond the capabilities of traditional outsourcing methods.

Activity 3

Illustrate with examples, the three models that a 4PL company can adopt to deliver supply chain services.

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17.6 ENTERPRISE RESOURCE PLANNING

Information technology (IT) has an ever-increasing role to play in providing fully integrated supply chain management solutions that incorporate supply chain configuration, demand planning, logistics and warehouse management. The contribution of IT has become imperative for capturing point-of-sales (POS) data and calculating near-accurate demand forecasts. For instance, Modi Xerox uses IT to reduce their cash-to-cash cycle time through fast flow of order/demand data and their execution through shipment and delivery/installation confirmation. Various solutions are available ranging from enterprise resource planning (ERP) tools to Internet based e-commerce opportunities. Some of these tools are discussed in the following sections.

Enterprise resource planning (ERP) tools are capable of capturing data and automating financial, inventory and customer order tracking tasks. ERP systems utilize a single data model and have an established set of rules for accessing data. Although this is possible within an organization, more complex systems like electronic data interchange (EDI) are required for accessing data from various databases strewn along the entire supply chain.

EDI consists of a communications standard that supports inter-organizational electronic exchange of common business documents and information. It represents a cooperative effort between buyer and seller. They can become more competitive by streamlining the communication process through the elimination of many steps involved in traditional information flows. The basic components of an EDI system includes:

1) A standard set of rules for formatting and syntax agreed upon by the user in the network like the American National Standards Institute (ANSI) standards.
2) Software that can translate company specific database information into EDI standard format for transmission.
3) A mail service responsible for the transmission of the document usually through its own network or a third party value-added network (VAN).

Hence, the EDI involves three basic processes:

1) Collecting and receiving data from application programs in different computers,
2) Converting data from application program formats to standard format for transmission over the network and reversing the same at the user end, and
3) Transmission of data between clients on the network.

For instance, a typical EDI inventory replenishment process could consist of the following steps:

1) The buyer's (customer's) computer maintains a real-time inventory of each product using automated technologies like bar-code readers.
2) It generates and delivers a predetermined purchase order to the supplier when the inventory is reduced to the re-order level. The information is simultaneously transmitted to accounts payable, warehouse and invoice files.
3) The supplier's computer translates the purchase order into its own format and automatically sends an acknowledgement to the customer.
4) A shipping note is electronically created with the fulfilled order and is sent to the customer. Upon receipt of the consignment, the receiver creates an electronic receipt notice that is sent to accounts payable and the supplier.

5) An invoice is then generated at the supplier's end and sent to the customer where the purchase order, receipt notice and invoice are automatically reconciled and a payment authorization is created and sent to accounts payable.

6) On receipt of this authorization, payment is transmitted electronically from the customer's bank to the supplier's bank.

7) An electronic remittance advice is sent to the supplier and upon receipt, this information is translated into accounts receivable and the buyer is given credit for payment.

This process requires manual data entry at only three instances and reduces paperwork drastically, thereby increasing the efficiency of the supply chain. However, a significant investment has to be made by companies to implement EDI and use VAN services. Due to excessive automation, collaboration is usually not possible, thereby alienating business processes from the EDI process. In order to overcome the difficulties that arose due to the use of EDI, companies, more recently, have started using the Internet for integrating and exchanging information across the supply chain.

Activity 4

Illustrate how EDI can help information flow for replenishing the inventory held by a wholesaler stocking consumer durables.

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17.7 INTERNET AND E-COMMERCE

In the concluding years of the last decade, the Internet, World Wide Web and electronic commerce (e-commerce) have grown extensively due to their open standards, rapid adoption, low cost and graphical user interface. Companies like FedEx, and Cisco have used the Internet to communicate with channel partners and maintain customer relationships. The Internet can be used for communicating information, accessing databases and automating transaction processing.

The Internet can benefit a supply chain in the following ways:

1) Enhance collaboration among partners for quick product development, logistics and marketing.

2) Help channel partners to log into each other's ERP systems and data warehouses for receiving real-time transaction processing data. It can enable on-line and real-time receipt of downstream demand signals for accurate forecasting, inventory management and synchronizing production schedules. This can enhance capacity utilization and reduce channel blockages.

3) Reduce the time and cost of communicating, thereby enhancing customer service quality and customer relationships. Also helps in receiving valuable customer feedback for measuring supply chain effectiveness.

4) Increase the capability of reaching out to new customer segments and markets.

5) Purchase orders and shipping notices etc. can be received using the Internet.

6) Enables shipment tracking and tracing facilities thereby reducing uncertainties and ensuring better customer support.

7) Smoothen and speed up order processing by integrating order requests and availability modules thereby helping to send order confirmation, calculate lead times and shipment dates. Vendors, suppliers and manufacturers can be alerted about received orders. Payment can be routed via the Internet in the form of secure money transfers.

8) Duplication and paper use can be minimized and limited to legal requirements.

9) Increases the visibility of the supply chain and enhances operational transparency. All partners are able to conduct business on a level playing field and are not at a loss due to lack of information.

10) Enhance organizational competitiveness through quick product development and marketing, enhanced responsiveness to customer requirements leading to customer satisfaction, and lowering costs through synchronized production, channel efficiencies and process innovations.

Channel partners can use the Internet to create a customer-centric supply chain. This requires clear vision, strong planning and technical insight into the Internet's capabilities.

The Internet is being increasingly used in order to bring the supplier and customers closer using the electronic media. This form of business over the electronic medium is popularly known as e-commerce. E-commerce proceeds through the following four stages:

1) Web presence
2) E-trading
3) Data delivery, and
4) Automation

Web presence involves uploading relevant information on a server hooked on to the world-wide-web that allows browsing and downloading information anywhere and from any computer. Besides, company and product related information the web site should be good in appearance, be easy to use, allow search facilities within the web site, contain contact information and allow users to provide feedback for improvement and customization. It should also contain necessary links to useful information both related to the company and outside it.

E trading involves using the company's web site on which product features are displayed. The web site should have features that allow customers to compare and see product previews, place orders, track their delivery and make payments. It should also allow them to provide suggestions, feedback and complaints. It should allow them to ask for after sales service and facilitate return of goods if desired. This stage is known as the e-commerce stage.

Data delivery implies updating and delivery of information related to the customer on the latter's computer. This includes updating customer's inventory data, and generating re-order alerts based on the information of inventory on-line from various sources. In this way, the supplier and customer's data are integrated to assist the customer in taking decisions regarding the supply chain.

All processes related to order placement and fulfillment between the supplier and customer are tightly integrated at this stage. Vital real-time information, like product rates, is available on the customer's computer enabling it to support complex decisions like vendor selection, etc.

17.8 SUPPLY CHAIN AGENTS

Software agents are being developed to be deployed by companies on the World Wide Web to gather necessary information and initiate action by themselves. *Intelligent agents* are software entities that can carry out operations on behalf of a user or another program, with some degree of independence or autonomy while using some knowledge or representation of the user's behavior, goals or desires. COOL (COOrdination Language), Java, KQML (Knowledge Query & Manipulation Language), Telescript and Tcl (Tool Control Language) are some of the computer languages being used to create agents, define their jobs and establish coordination protocols for communication and collaboration among multiple agents.

Some of the supply chain activities that e-Agents can take up include:

- **Trading:** e-Agents can collect required information on behalf of the supplier/ customer by contacting them and conducting a variety of online business transactions and functions including negotiations. It has been widely felt that human negotiation performance falls significantly short of optimal performance in real life while e-agent driven negotiations can offer significant benefits.
- **Brokering:** e-Agents can find information about products, sellers and prices, while providing privacy and protection. They can be instrumental in validating purchasers' credit, billing, accounting, etc.
- **Auction**: e-Agents can help potential bidders search for specific auction items on the internet, automatically update the latest item bid prices and notifying users when an auctions closes.
- **Coordination:** e-Agents can contact supply chain partners and conduct teleconferences etc.
- **Managing Customer Relationships:** e-Agents can facilitate on-line search and customer query handling.

In a nutshell, e-agents can act as smart assistants performing complex and collaborative tasks. They reduce the amount of human-computer interaction. This can lead to considerable saving in time and cost for every partner in the supply chain. e-Agents can help channel partners collaborate and manage the supply chain to enhance customer satisfaction and reduce operational costs.

17.9 GREEN SUPPLY CHAIN

Green supply chain involves the management of materials and resources from suppliers to manufacturers, service providers to customers and back while protecting and conserving the natural environment.

A green supply chain involves the implementation of appropriate strategies to reconcile the supply chain to environmental protection and conservation on a sustainable basis. Waste minimization and elimination of inessential non-value added activities is one of the most important strategies towards a green supply chain. Process wastage decreases efficiency and lowers productivity. Reduced output and blocked inventory decreases profitability and growth thereby making the business process unsustainable in the end. Such business processes ultimately end up firing fuel and energy without delivering value to the society.

Another important green strategy is to automate processes by using the electronic media as far as possible. This reduces paper work, and eliminates non-value added activities involved in filing, storing, maintaining and retrieving documents.

Usage of materials must be limited to the extent required. Excessive trimming and disposal of partially filled containers of materials is both wasteful and environmentally harmful. Wastage can take place when materials or goods are unnecessarily stored before they can be used. Just-in-time delivery and usage of materials can reduce the wastage that can occur during multiple storage and handling.

While preventing and eliminating waste would be the best policy, some waste is inevitable at the customer's end in the form of used containers, packaging etc. Recycling these materials helps to use them once again thereby reducing their role in environmental pollution. The process of recycling, renovating and reusing materials can be undertaken through a separate supply-chain channel, collectively termed as reverse logistics.

17.10 REVERSE LOGISTICS

Reverse Logistics is the process of moving goods from the ultimate customer to another point, for extracting value that is otherwise unavailable, or disposing them properly. Goods returned to the supplier may be in the form of:

- **Manufacturing returns** from the production floor consisting of products having unsatisfactory quality or left over materials
- **Commercial returns** arising out of contracts for taking back obsolete stocks of short-life products
- **Product recalls** arising out of the detection that defective products have been released in the supply chain
- **Warranty returns** of defective products under warranty
- **Service returns** of products for servicing
- **End-of-use returns** for re-manufacturing or re-cycling
- **End-of-life returns** for appropriate disposal

Reverse Logistics activities include the following activities:

- Processing returned products
- Recycling packaging materials and reusing containers
- Reconditioning, remanufacturing and refurbishing products
- Disposing obsolete equipment
- Reuse or disposal of hazardous materials
- Asset recovery

Reverse logistics is a part of the closed-loop supply chain as depicted in Figure 17.1. The reverse logistics parts of the supply chain starts with collection of returned goods or refuse which then pass through sorters to reprocessing (reuse, recycle, recondition, remanufacture, refurbishing and asset recovery) or to disposal.

One of the main objectives of reverse logistics is to keep the cost of reprocessing returned/refused materials lower than that of new products in order to keep the venture profitable. Accordingly, transportation and handling costs have to be kept to a minimum. Often the extra cost incurred in reverse logistics is added to the products when they are first sold new. Moreover, recycling and disposal procedures must incorporate applicable government and environment protection laws.

At most companies, returns are primarily managed through a series of disconnected and paper-intensive processes. As a result, it takes the average company between 30 and 70 days to get a returned product back into the market, including return transportation, repair or refurbishing, and redistribution to the customer or market. Moreover, both companies and customers have limited visibility into the returns process. In fact, a manufacturer frequently finds out about a return only after it lands on the receiving dock.

Long reverse logistics cycles are harmful for products that have short lifecycles such as high-tech products that can lose up to half their value in a single business quarter. Moreover, Internet-based sales have increased the incidence of returns to around 60%. Delays and lack of visibility into the reverse logistics process can result in lost sales, customer dissatisfaction and inventory carrying costs.

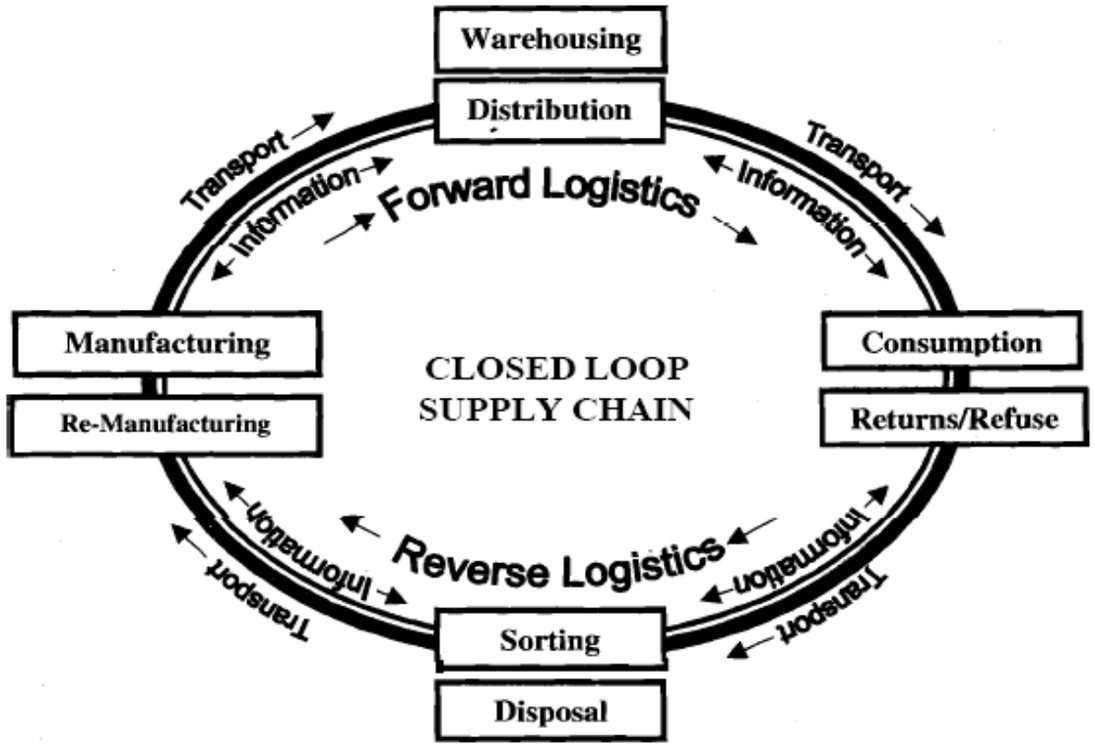

Fig. 17.1: Closed Loop Supply Chain

Web-based applications are being developed that focus on automating and streamlining the process and information flows associated with returns management, These application connect customers, collectors, manufacturers, and carriers while providing much needed visibility into, and control over, the returns process. This can help suppliers maintain customer satisfaction levels.

17.11 WORLD CLASS SUPPLY CHAIN

World-class supply chains are capable of providing better value to customers than the competition while remaining financially healthy and environment friendly. They would be differentiated by the excellent quality of service that they provide to the customers. Their activities would be value driven, they would be responsive to customers and continuous learning, improvement and innovation would be their hallmark.

Their employees would be empowered to think and act like owners and would go to any extent to keep their customers delighted. They would be provided with the right environment, management support and training to ensure excellent performance. They would be fully involved and happy to meet organizational objectives.

World-class supply chain service providers would have a proactive management that is balanced and consistent. Their management would be based on facts and analyzed data. Activities and processes across the supply chain would be seamlessly integrated with the help of IT, which would also be employed to assist decision-making, reducing waste and remaining flexible. They would undertake a systems approach to management. The leadership would establish unity of purpose and provide direction to the organization. They would create an environment that provides continuous challenge and rewards tied to performance and fair opportunities for growth.

They would collaborate and maintain strategic alliances with suppliers based on ethics, honesty, professionalism and a win-win philosophy that can lead towards combined growth of all the players involved in the supply chain.

Examples of some companies providing world-class services in the supply chain are Federal Express (Inventory Control), British Telecom (Billing and Collection), Xerox (Customer Service), Caterpillar (Information Systems), Wall-Mart (Logistics), Honda (Purchasing), 3M (Supplier Management) and L. Bean (Warehousing and Distribution). Managers and researchers agree that providing world-class services can prove to be a sustainable strategy in the long run.

17.12 SUMMARY

Effective management of large and complex supply chains necessitates the implementation of new strategies in the ever-changing market space in the future. Keeping customers satisfied and happy by delivering greater value than the competitor would be the prime concern of organizations in the coming years. Supply chains having smooth product and information flow can continue to compete and grow in the market space.

Strategic alliances among channel partners can be one way of enhancing supply chain effectiveness. Collaborative strategies like VMI, RSP etc. are gaining momentum. Companies can outsource supply chain services to third party and fourth party logistics companies in order to focus on their core-competencies. Information technology and the Internet have become indispensable for adding value to traditional supply chain services.

Nations around the world are working towards the implementation of environment friendly supply chain activities. Reverse logistics closes the supply chain and can contribute to environmental protection and conservation.

17.13 SELF ASSESSMENT EXERCISES

1) What are the advantages of collaboration among members in the supply chain?
2) How can vendor managed inventory contribute to supply chain effectiveness?
3) “In this era of outsourcing, third party logistics can add value to existing supply chains.” Explain this statement with examples.
4) What are advantages of fourth party logistics over third party logistics?

5) What is the skill set required by 4PL companies to be able to effectively integrate the supply chain for their client company?

6) Describe the role of the Internet in managing supply chains in the future.

7) What activities can be performed by e-Agents? How can e-agents help to enhance collaboration among channel partners?

8) How can reverse logistics cater to a green supply chain strategy in the future?

9) What do you understand by the term "world-class supply chain"?

17.14 REFERENCES AND SUGGESTED FURTHER READINGS

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