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PURCHASING & SUPPLY CHAIN MANAGEMENT

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PREFACE

Purchasing and supply chain management focuses on the fundamental aspects of the supply/value chain, including methods to improve how organizations find the materials and services needed to make a product or service and deliver it to customers. Supply chain management (SCM) encompasses the management of all activities involved in sourcing, procurement, production, logistics and customer relations. It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. SCM practice draws heavily from the areas of industrial engineering, systems engineering, operations management, logistics, procurement, information technology, and marketing and strives for an integrated approach. Marketing channels play an important role in supply chain management.

Content Coverage

Chapter One provides the basics of supply chain management. These functions include procurement of materials transformation of materials and intermediate products into intermediate and finished products, and distribution of finished products to the customers. *Chapter Two* emphasizes on processes of supply chain management such as supply chain planning, procurement and transportation. *Chapter Three* describes the concepts of inventory management that refers to the method by which businesses handle tangible resources and materials in order to make sure resources are readily available for use. Inventories are generally managed using a paper list system or a computer software-enabled system. By using an inventory management system, a business can use resources more efficiently in order to generate revenues. *Chapters Four* and *Chapter Five* explores the management of distribution channels and the functions of purchasing. *Chapter Six* emphasizes on managing international operations such as financial environment and other activities that are involved in producing and delivering a product or service.

The following are the salient features of the book:

- Provide an understanding of business management as well as the opportunity to specialize in the purchasing and supply chain management functions of business.

- Topics are logically arranged according to the course outline of the subject.
- The use of simple language to facilitate a better understanding of each chapter.
- Illustrative examples of varying difficulties, wherever needed, are presented to enhance the interest of students.
- The provision of knowledge check test for each chapter is given at the end of chapter to strengthen the learning process of students.
- Case Study, Role Model, Keywords, and Examples are also provided to enrich the knowledge of students.

CHAPTER

1

SUPPLY CHAIN MANAGEMENT (SCM): BASICS

LEARNING OBJECTIVES

After studying this chapter, you will be able to

1. Describe the elementary perception of supply chain
2. Explain the quality of supply chain system

INTRODUCTION

A supply chain is a network of functional organizations that through their activities perform the logistics functions. These functions include procurement of materials transformation of materials and inter- mediate products into intermediate and finished products, and distribution of finished products to the customers. Supply chains exist both in manufacturing and service organizations Supply chains can differ greatly in complexity from industry to industry and from individual company to company, Because of the widespread prevalence and variety of supply chains, many alternative definitions of a supply chain exist.

The term supply chain is somewhat of a misnomer because a supply chain is often not a single or simple chain but a complex network with many divergent and convergent flows. Because of the current focus of companies on their core competencies, there are usually many different organizations active in a supply chain. If all these organizations belong to the same (multinational) corporation, information flows usually are more comprehensive and engineering methodology based decision-making is easier. However, the fundamental nature of the supply chain does not change with the number of corporations involved. In other words, there is no difference in the definition of a supply chain depending on the fact if one or more corporations are responsible for executing the logistics functions For an organization to become and remain part of a supply chain requires this to be a beneficial relationship or win-win situation in the long run for both this organization and for the other organizations in the supply chain.

1.1. ELEMENTARY PERCEPTION OF SUPPLY CHAIN

A supply chain is a network of retailers, distributors, transporters, storage facilities and suppliers that participate in the production, delivery, and sale of a product to the consumer. It is typically made up of multiple companies who coordinate activities to set themselves apart from the competition.

There are three key parts to a supply chain:

- Supply focuses on the raw materials supplied to manufacturing, including how, when, and from what location.
- Manufacturing focuses on converting these raw materials into finished products.
- Distribution focuses on ensuring these products reach the consumers through an organized network of distributors, warehouses, and retailers.

While often applied to manufacturing and consumer products, a supply chain can also be used to show how several processes supply one another. The definition in this sense can apply to Internet technology, finance, and many other industries. A supply chain strategy defines how the network should operate in order to compete in the market, evaluating the benefits and costs relating to the operation. While a business strategy focuses on the overall direction a company wishes to pursue, supply chain strategy focuses on the actual operations of the organization and the path that will be used to meet a specific goal.

Another related term is supply chain management (SCM), which is the oversight of materials, information, and finances as they are distributed from supplier to consumer. The supply chain also includes all the necessary stops between the supplier and the consumer, so its management involves coordinating this flow of materials within a company and to the end consumer.

The SCM can be divided into three main flows:

- The Product flow includes moving goods from supplier to consumer, as well as dealing with customer service needs.
- The Information flow includes order information and delivery status.
- The Financial flow includes payment schedules, credit terms, and additional arrangements.

The supply chain operations reference model (SCOR) is a management tool used to address, improve, and communicate the SCM decisions within a company and with suppliers and customers of a company. The model describes the business processes

required to satisfy a customer's demands. It also helps to explain the processes along the entire supply chain and provides a basis for how to improve those processes.

The SCOR model was developed by the supply chain council with the assistance of 70 of the world's leading manufacturing companies. It has been described as the "most promising model for supply chain strategic decision making. The model integrates business concepts of process re-engineering, benchmarking, and measurement into its framework. This framework focuses on five areas of the supply chain: plan, source, make, deliver, and return. These areas repeat again and again along the supply chain. The supply chain council says this process spans from "the supplier's supplier to the customer's customer."

When all facets of the supply chain have the same data at the same time, the increased efficiency of information removes data lags and saves costs. The textile firm Milliken & Company was one of the first companies to use point-of-sale data from retail outlets to link up to their manufacturing facilities. Before the synchronization efforts, the company would take 18 weeks to fill an order from retailers. The increased data efficiency allowed Milliken to cut that time down to three weeks.

Plan

This is the strategic portion of SCM. Companies need a strategy for managing all the resources that go toward meeting customer demand for their product or service. A big piece of SCM planning is developing a set of metrics to monitor the supply chain so that it is efficient, costs less and delivers high quality and value to customers.

Supply chain planning (SCP) is the component of SCM involved with predicting future requirements to balance supply and demand.

The SCM is sometimes broken down into the stages of planning, execution and shipping. Supply chain planning and supply chain execution (SCE) is the two main categories of SCM software. The SCP products may include supply chain modeling, and design, distribution and supply network planning. SCE software applications track the physical status of

goods, the management of materials, and financial information involving all parties.

Demand and supply planning and management are included in this first step. Elements include balancing resources with requirements and determining communication along the entire chain. The plan also includes determining business rules to improve and measure supply chain efficiency. These business rules span inventory, transportation, assets, and regulatory compliance, among others. The plan also aligns the supply chain plan with the financial plan of the company.

Develop (Source)

This step describes sourcing infrastructure and material acquisition. It describes how to manage inventory, the supplier network, supplier agreements, and supplier performance. It discusses how to handle supplier payments and when to receive, verify, and transfer product.

The companies must choose suppliers to deliver the goods and services they need to create their product. Therefore, supply chain managers must develop a set of pricing, delivery and payment processes with suppliers and create metrics for monitoring and improving the relationships. And then, SCM managers can put together processes for managing their goods and services inventory, including receiving and verifying shipments, transferring them to the manufacturing facilities and authorizing supplier payments.

Resilient supply networks should align its strategy and operations to adapt to risk that affects its capacities. There are 4 levels of supply chain resilience. First is reactive supply chain management. Second is internal supply chain integration with planned buffers.

Make

Manufacturing and production are the emphasis of this step. Is the manufacturing process make-to-order, make-to-stock, or engineer-to-order? The make step includes, production activities, packaging, staging product, and releasing. It also includes managing the production network, equipment and facilities, and transportation.

Deliver

Delivery includes order management, warehousing, and transportation. It also includes receiving orders from customers and invoicing them once product has been received. This

step involves management of finished inventories, **assets**, transportation, product life cycles, and importing and exporting requirements.

Assets are economic resource. Anything tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value is considered an asset.

Return

This can be a problematic part of the supply chain for many companies. Supply chain planners have to create a responsive and flexible network for receiving defective and excess products back from their customers and supporting customers who have problems with delivered products.

Companies must be prepared to handle the return of containers, packaging, or defective product. The return involves the management of business rules, return inventory, assets, transportation, and regulatory requirements.

Benefits of Using the SCOR Model

The SCOR process can go into many levels of process detail to help a company analyze its supply chain. It gives companies an idea of how advanced its supply chain is. The process helps companies understand how these steps repeat over and over again between suppliers, the company, and customers. Each step is a link in the supply chain that is critical in getting a product successfully along each level. The SCOR model has proven to benefit companies that use it to identify supply chain problems. The model enables full leverage of capital investment, creation of a **supply chain** road map, alignment of business functions, and an average of two to six times return on investment.

Supply Chain is a system of organizations, people, activities, information, and resources involved in moving a product or service from supplier to customer.

1.1.1 The Advantages of Supply Chain

Effective supply chains give businesses a competitive advantage in the marketplace and help mitigate risks associated with acquiring raw materials and delivering products or services. By implementing supply chain management systems, businesses are able reduce waste, overhead costs and shipping delays in a scientific way. The benefits of this systematic approach impacts areas ranging from product quality to order turn-around times.

Quality Assurance

Many manufacturers in the U.S. have relocated their operations to countries such as China, India and Russia in an effort to cut production costs. This has caused experienced domestic personnel to opt for other job assignments. As a result, product quality within the supply chain has become a pressing issue. Defects and rework attributable to poor systems are raising the costs of doing business. One of the advantages of supply chain management is that it incorporates quality techniques, such as quality management systems, to improve operations.

Inventory Buffers

In almost every type of business, there is variability in customer spending. This requires companies to manage their inventories in a way that minimizes holding costs while providing enough flexibility to meet customer demands. If inventory levels fall too low, businesses may have to pay overtime to produce products or lose out on revenue by making customers wait or shop somewhere else. Supply chain management systems typically include inventory buffer levels that are pre-determined with careful analysis of historical trends.

Shipping Options

As e-commerce continues to grow globally, buyers have more options to order products than ever before. Shipping options need to keep pace with the demands of the marketplace, which requires companies to readjust their supply chains to meet customers' preferences. Whether it is small parcel shipping or larger bulk orders, shipping in a quick and accurate fashion is key for business success. Supply chain management systems help companies determine the optimal ways to ship while reducing costs to the lowest possible level.

Risk Mitigation

Managing risk is a key responsibility for business leaders, and supply chain management systems allow for the identification of critical risk factors in an organization or with their suppliers. Whether it is product quality, compliance with applicable laws or operational safety, management must mitigate risk

Management must have humans, communication, and a positive enterprise endeavor. Plans, measurements, motivational psychological tools, goals, and economic measures (profit, etc.) may or may not be necessary components for there to be management.

in an effective manner. Supply chain methodologies assist management with organizing risks and ascertaining the potential for internal or external failures. Without effective supply chain management systems, many companies are exposed to legal risks and liabilities.

1.1.2 Operations and Supply Chain Management

DID YOU KNOW?

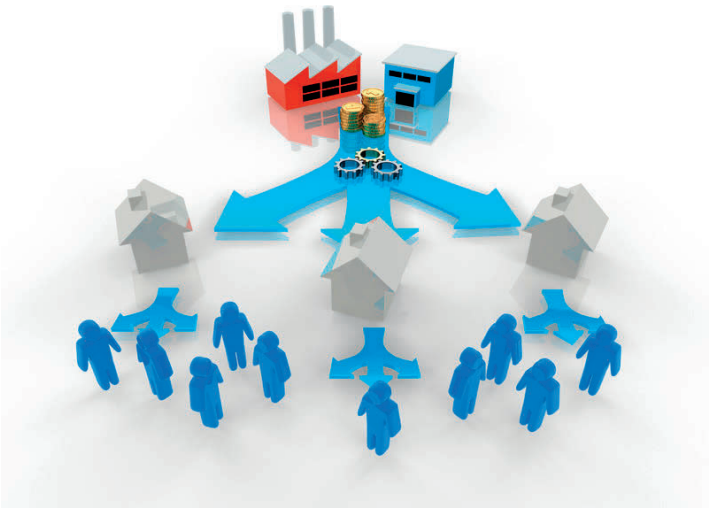
The term "supply chain management" entered the public domain when Keith Oliver, a consultant at Booz Allen Hamilton (now Strategy&), used it in an interview for the Financial Times in 1982.

The Supply Chain and Operations Management (SCOM) major examines the integration of all key business processes from original suppliers through end users and provides products, services, and information that can add value for customers and stakeholders. The supply chain portion of the curriculum examines the supply, storage, movement of materials, and finished goods within an organization while the operations function relates to the efficient and most effective use of personnel, machines, and other resources.

Operations and SCM have concepts related to the design, planning, control, and improvement of manufacturing and service operations. One will be introduced to an innovative blend of analytical and empirical approaches to important problems facing the private and public sectors, including: project management, service delivery systems, product development, business analytics, inventory and supply chain management, among others

A supply chain is the collection of steps that a company takes to transform raw components into final products and deliver them to customers. The SCM is the process that is used by a company to ensure that its supply chain is efficient and cost effective. This typically is comprised of five stages: planning, development, manufacturing, logistics and returns.

During the planning stage, a strategy must be developed to address how a given product will meet the needs of the customers. A significant portion of this strategy often focuses on planning a profitable supply chain. The development stage involves building a strong relationship with suppliers of the raw materials that are needed in making the product the company delivers. This phase involves not only identifying reliable suppliers but also creating methods for shipping, delivery and payment.

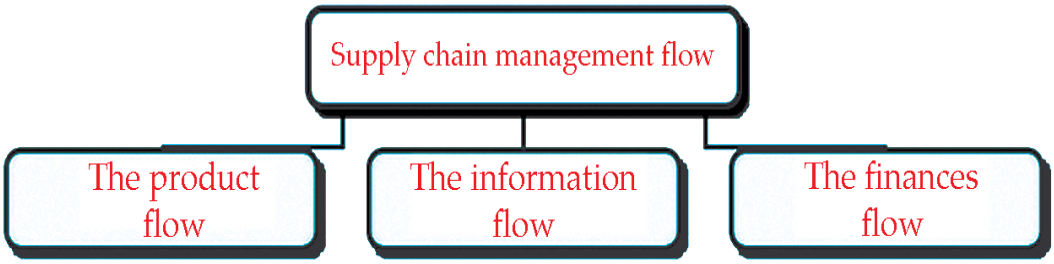


In the next stage, the product is manufactured, tested, packaged and scheduled for delivery. Then, at the logistics phase, customer orders are received, and delivery of the goods is planned. The final stage of SCM is when customers can return defective products. The company also must address customer questions during this stage.

Supply Chain Management Flows

One can be divided into three main flows:

- The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs.
- The information flow involves transmitting orders and updating the status of delivery.
- The financial flow consists of credit terms, payment schedules, and consignment and title ownership arrangements.



Elements of the Supply Chain

A simple supply chain is made up of several elements that are linked by the movement of products along it. The supply chain starts and ends with the customer.

- *Customer*: The customer starts the chain of events when they decide to purchase a product that has been offered for sale by a company. The customer contacts the sales department of the company, which enters the sales order for a specific quantity to be delivered on a specific date. If the product has to be manufactured, the sales order will include a requirement that needs to be fulfilled by the production facility.
- *Planning*: The requirement triggered by the customer's sales order will be combined with other orders. The planning department will create a production plan to produce the products to fulfill the customer's orders. To manufacture the products the company will then have to purchase the raw materials needed.
- *Purchasing*: The purchasing department receives a list of raw materials and services required by the production department to complete the customer's orders. The purchasing department sends purchase orders to selected suppliers to deliver the necessary raw materials to the manufacturing site on the required date.
- *Inventory*: The raw materials are received from the suppliers, checked for quality and accuracy and moved into the warehouse. The supplier will then send an invoice to the company for the items they delivered. The raw materials are stored until they are required by the production department.
- *Production*: Based on a production plan, the raw materials are moved inventory to the production area. The finished products ordered by the customer are manufactured using the raw materials purchased from suppliers. After the items have been completed and tested, they are stored back in the warehouse prior to delivery to the customer.
- *Transportation*: When the finished product arrives in the warehouse, the shipping department determines the most efficient method to ship the products so that they are delivered on or before the date specified by the customer. When the goods are received by the customer, the company will send an invoice for the delivered products.

1.1.3 Significance and Functions of Operations and SCM

The SCM is an essential element to operational efficiency. SCM can be applied to customer satisfaction and company success, as well as within societal settings, including medical missions; disaster relief operations and other kinds of emergencies; cultural evolution; and it can help improve quality of life. Because of the vital role SCM plays

within organizations, employers seek employees with an abundance of SCM skills and knowledge. The SCM is critical to business operations and success for the following reasons:

SCM is Globally Necessary

Basically, the world is one big supply chain. The SCM touches major issues, including the rapid growth of multinational corporations and strategic partnerships; global expansion and sourcing; fluctuating gas prices and environmental concerns, each of these issues dramatically affects corporate strategy and bottom line. Because of these emerging trends, SCM is the most critical business discipline in the world today.

Reasons for SCM in Society

The SCM is necessary to the foundation and infrastructure within societies. SCM within a well-functioning society creates jobs, decreases pollution, decreases energy use and increases the standard of living.

Reasons for SCM in Business

Clearly, the impact that SCM has on business is significant and exponential. Two of the main ways SCM affects business include:

Boosts Customer Service

The SCM impacts customer service by making sure the right product assortment and quantity are delivered in a timely fashion. Additionally, those products must be available in the location that customers expect. Customers should also receive quality after-sale customer support.

Improves Bottom Line

The SCM has a tremendous impact on the bottom line. Firms value supply chain managers because they decrease the use of large fixed assets such as plants, warehouses and transportation vehicles in the supply chain. Also, cash flow is increased because if delivery of the product can be expedited, profits will also be received quickly.

Supply chain management helps streamline everything from day-to-day product flows to unexpected natural disasters. With the tools and techniques that SCM offers, one will has the ability to properly diagnose problems, work around disruptions and determine how to efficiently move products to those in a crisis situation.

Functions of SCM

The process of SCM can be divided into three distinct flows; product flow, information flow, and finances flow.

- Product flow includes the movement of goods from a supplier to the customer.
- The flow of information related to the status of product delivery is referred to as information flow.
- The finances flow involves the payment schedule, credit terms, and title ownership arrangements.

Strategic activities that are a part of the SCM involve strategic network optimization, the establishment of partnerships with suppliers, distributors and customers, planning for the integration of existing products into the supply chain, and the design of a business strategy. Taking inventory and production decisions, devising transportation strategies, benchmarking of operations and focusing on customer demand are some of the other activities involved in the supply chain management. Planning of daily production and distribution, planning and scheduling of inbound and outbound operations are some of the important operational activities involved in supply chain management.

1.1.4 Supply Chain Performance Measures

An important component in supply chain design and analysis is the establishment of appropriate performance measures. A performance measure, or a set of performance measures, is used to determine the efficiency and/or effectiveness of an existing system, or to compare competing alternative systems. Performance measures are also used to design proposed systems, by determining the values of the decision variables that yield the most desirable level(s) of performance. Available literature identifies a number of performance measures as important in the evaluation of supply chain effectiveness and efficiency.

Qualitative Performance Measures

Qualitative performance measures are those measures for which there is no single direct numerical measurement, although some aspects of them may be quantified. These objectives have been identified as important, but are not used in the models reviewed here:

- Customer Satisfaction: The degree to which customers are satisfied with the product and/or service received, and may apply to internal customers or external customers. Customer satisfaction is comprised of three elements.
  - Pre-Transaction Satisfaction: satisfaction associated with service elements occurring prior to product purchase.

  - Transaction Satisfaction: satisfaction associated with service elements directly involved in the physical distribution of products.
  - Post-Transaction Satisfaction: satisfaction associated with support provided for products while in use.
- Flexibility: The degree to which the supply chain can respond to random fluctuations in the demand pattern.
- Information and Material Flow Integration: The extent to which all functions within the supply chain communicate information and transport materials.
- Effective Risk Management: All of the relationships within the supply chain contain inherent risk. Effective risk management describes the degree to which the effects of these risks is minimized.
- Supplier Performance: With what consistency suppliers deliver raw materials to production facilities on time and in good condition.

Quantitative Performance Measures

Quantitative performance measures are those measures that may be directly described numerically. Quantitative supply chain performance measures may be categorized by:

- objectives that are based directly on cost or profit and
- Objectives that are based on some measure of customer responsiveness.

Measures Based on Cost

- Cost Minimization: The most widely used objective. Cost is typically minimized for an entire supply chain (total cost), or is minimized for particular business units or stages.
- Sales Maximization: Maximize the amount of sales dollars or units sold.
- Profit Maximization: Maximize revenues less costs.
- Inventory Investment Minimization: Minimize the amount of inventory costs (including product costs and holding costs)
- Return on Investment Maximization: Maximize the ratio of net profit to capital that was employed to produce that profit.

Measures Based on Customer Responsiveness

- Fill Rate Maximization: Maximize the fraction of customer orders filled on time.
- Product Lateness Minimization: Minimize the amount of time between the promised product delivery date and the actual product delivery date.

- Customer Response Time Minimization: Minimize the amount of time required from the time an order is placed until the time the order is received by the customer.
- Usually refers to external customers only.
- Lead Time Minimization: Minimize the amount of time required from the time a product has begun its manufacture until the time it is completely processed.
- Function Duplication Minimization: Minimize the number of business functions that are provided by more than one business entity.

1.1.5 Evolution from Manufacturing to Operations Management

For over two century's operations and production management has been recognized as an important factor in a country's economic growth.

The traditional view of manufacturing management began in eighteenth century when Adam Smith recognized the economic benefits of specialization of labor. He recommended breaking of jobs down into subtasks and recognizes workers to specialized tasks in which they would become highly skilled and efficient.

In the early twentieth century, F.W. Taylor implemented Smith's theories and development of scientific management. From then till 1930, many techniques were developed prevailing the traditional view.

Systems for production have existed since ancient times. The production of goods for sale, at least in the modern sense, and the modern factory system had their roots in the Industrial Revolution.

The Industrial Revolution

The Industrial Revolution began in the 1770s in England and spread to the rest of Europe and to the United States during the 19th century. Prior to that time, goods were

produced in small shops by craftsmen and their apprentices. Under that system, it was common for one person to be responsible for making a product, such as a horse-drawn wagon or a piece of furniture, from start to finish. Only simple tools were available; the machines in use today had not been invented.

Then, a number of innovations in the 18th century changed the face of production forever by substituting machine power for human power. Perhaps the most significant of these was the steam engine, because it provided a source of power to operate machines in factories. Ample supplies of coal and iron ore provided materials for generating power and making machinery. The new machines, made of iron, were much stronger and more durable than the simple wooden machines they replaced.

In the earliest days of manufacturing, goods were produced using craft production: highly skilled workers using simple, flexible tools produced goods according to customer specifications.

Craft production had major shortcomings. Because products were made by skilled craftsmen who custom fitted parts, production was slow and costly. And when parts failed, the replacements also had to be custom made, which was also slow and costly. Another shortcoming was that production costs did not decrease as volume increased; there were no economies of scale, which would have provided a major incentive for companies to expand. Instead, many small companies emerged, each with its own set of standards.

A major change occurred that gave the Industrial Revolution a boost: the development of standard gauging systems. This greatly reduced the need for custom-made goods. Factories began to spring up and grow rapidly, providing jobs for countless people who were attracted in large numbers from rural areas.

Despite the major changes that were taking place, management theory and practice had not progressed much from early days. What was needed was an enlightened and more systematic approach to management.

Scientific Management

The scientific management era brought widespread changes to the management of factories. The movement was spearheaded by the efficiency engineer and inventor Frederick Winslow Taylor, who is often referred to as the father of scientific management. Taylor believed in a "science of management" based on observation, measurement, analysis and improvement of work methods, and economic incentives. He studied work methods in great detail to identify the best method for doing each job. Taylor also believed that management should be responsible for planning, carefully selecting and training workers, finding the best way to perform each job, achieving cooperation between management and workers, and separating management activities from work activities.

Acceptance in human psychology is a person's assent to the reality of a situation, recognizing a process or condition (often a negative or uncomfortable situation) without attempting to change it, protest.

Taylor's methods emphasized maximizing output. They were not always popular with workers, who sometimes thought the methods were used to unfairly increase output without a corresponding increase in compensation. Certainly some companies did abuse workers in their quest for efficiency. Eventually, the public outcry reached the halls of Congress, and hearings were held on the matter. Taylor himself was called to testify in 1911, the same year in which his classic book, The Principles of Scientific Management, was published. The publicity from those hearings actually helped scientific management principles to achieve wide **acceptance** in industry.

1.1.6 Physical Distribution to Logistics to SCM

Transportation, logistics, supply chain management, materials handling, and inventory control continue to evolve. This evolution has created cross-fertilization among these functions, driven by factors both conceptual matching demand to supply and technological an enhanced ability to communicate and collaborate.

This cross-fertilization has also blurred the definition of some terms.

For example, is logistics the same thing as supply chain management?

People working in different functional areas of logistics often define supply chain management (SCM) as it relates to what they do. A recent survey of Inbound Logistics readers supports this. Some respondents say SCM is the same old thing with a new handle, while others note it is more encompassing than logistics.

Many logistics veterans believe one has progressed from transportation to physical distribution to logistics to supply chain management. By contrast, purchasing managers have evolved their thinking from purchasing management to procurement and now to supply management (SM). Some couch supply management as SCM. Others do not want to give up the term purchasing, and now refer to this functional area as purchasing and supply management.

Manufacturing professionals hold yet another perception of SCM: as the task of allocating and committing resources for obtaining necessary supplies and capacity, handling, and positioning products to meet customer demands. The material requirements planning (MRP) and enterprise resource planning (ERP) systems now address resource commitments that go beyond manufacturing to include other enterprise and supplier resources, ultimately directed to satisfying customer demands with limited and efficient use of resources.

Other departments in the company also wonder about SCM and its orientation. In marketing as well as the broader functionality that includes business and consumer research, promotions, and sales SCM addresses the needs and market potential of not only immediate customers and consumers who buy products and services, but also end users. Naturally, market research analyses of end product usage are extremely important.

Many professionals perceive SCM in terms of a conceptual flow model, with goods flowing from the beginning source of raw materials to their end use. Within this context, my peers and I define SCM as "the integration of processes composed of materials, services, information, and cash within a company

REMEMBER

As a consequence, costs must be lowered throughout the chain by driving out unnecessary expenses, movements, and handling. The main focus is turned to efficiency and added value, or the end-user's perception of value.

and in a network of companies or organizations that manufacture and deliver products and services from initial sources to end users."

By its nature, SCM encapsulates inter-enterprise, cross-functional processes that target end users of products and services. It requires integrated teams who are open and trustful in their value engineering and activities analysis.

Initially, logistics practitioners focus on supply chain applications that interface with immediate customers, suppliers, and intermediaries. Economic functional "activity" tradeoffs are analyzed in terms of who best can perform functions that are for the good of all trading partners. The long-term vision is inter-enterprise teams working seamlessly across all functions and activities to meet end user needs.

1.2 QUALITY OF SUPPLY CHAIN SYSTEM

To help improve customer satisfaction, greater emphasis is given to the aspect of quality in the supply chain.

Poor quality products, an unsafe work environment, or failure to comply with regulations ranging from product safety to social responsibility, can cause business disruption, financial loss, costly lawsuits, and long-lasting damage to the brand and corporate image of organizations that are dependent upon supply chain vendor performance. In the extreme, a brand, or even a company's reputation, can be damaged irreparably.

The crisis-catalyst may originate during any step in the supply chain process, from design to raw materials, to production, or transportation. Most often the issue centers on substandard materials or how well components or finished goods were

designed and produced. Recently, company reputations have been damaged by substandard social responsibility practices of suppliers, even when the product **quality** was acceptable.

The quality management policies and practices of suppliers must be aligned with the standards of the company branding or selling the product. These quality management practices should also be aligned with accepted international standards. This is because failures in the supply chain are passed down the line to the firms ultimately marketing the products. Such failures can result in consumer dissatisfaction, regulatory noncompliance and, in some cases, public criticism of the corporate management practices.

Quality is a perceptual, conditional, and somewhat subjective attribute and may be understood differently by different people.

There have been numerous, highly publicized cases in recent years from tainted toothpaste to lead paint in toys, to flawed labor practices of manufacturers. Companies are increasingly setting standards of quality management systems and worker treatment for their suppliers to avoid these kinds of problems. Vendor quality management standards are increasingly becoming a contractual condition for maintaining a supplier relationship.

Meeting stricter client and international quality management standards requires some vendors to invest in improving practices, policies, and management systems. Many adopt international standards, especially those of the International Organization for Standardization (ISO), the American National Standards Institute (ANSI), and the American Society for Quality (ASQ) to demonstrate acceptable practices. Additional security standards also may have to be adhered to by transportation, shipping, and logistics firms in the supply chain. While improvements in performance require investment, there are compelling benefits for suppliers to move forward. Adherence to quality management standards differentiates suppliers from competitors who do not comply and strengthens the relationship between a company and the vendor.

Companies should periodically validate vendor adherence to the required quality management standards by conducting supply chain vendor audits. Audit protocols serve an additional critical role, namely that of identifying and qualifying new vendors. The validation process involves on-site vendor audits that compare actual vs. required policy and practice standards. These analyses enable identification of critical performance gaps

and opportunities for improvement. Constant improvement in quality management helps to reduce the risk of costly and embarrassing failures.

1.2.1 Overview from various Perspectives

Although there are several definitions of quality, simply put, quality can be defined as meeting or exceeding customer expectations. According to the American Society for Quality, the definition of quality is "A subjective term for which each person or sector has its own definition.

In technical usage, quality can have two meanings:

- The characteristics of a product or service that bear on its ability to satisfy stated or implied needs; a product or service free of deficiencies.
- According to Joseph Juran, quality means "fitness for use;" according to Philip Crosby, it means "conformance to requirements." Quality tools exist and include, but are not limited to: cause analysis (cause-and-effect diagrams, pareto charts, and scatter diagram), evaluation and decision-making tools (decision matrix and multi-voting), process analysis (flowchart, failure modes and effects analysis, mistake-proofing, and spaghetti diagrams), data collection and analysis (box and whisker plot, check sheet, control chart, design of experiments, histogram, scatter diagram, stratification, and surveys), idea creation (affinity diagram, benchmarking, brainstorming, and nominal group technique), an improvement project (Gantt chart and Plan-Do-Study-Act continuous improvement model), and management tools (relations diagram, tree diagram, matrix diagram, L-shaped matrix, arrow diagram, and process decision program chart).

Total quality management is a set of quality practices that seek to continuously improve quality in processes.

There are some key principles of total quality include:

- Define quality in terms of customers and their requirements.
- Pursue quality at the source.
- Stress objective rather than subjective analysis.
- Emphasize prevention rather than detection of defects.
- Focus on process rather than output.
- Strive for zero defects.
- Establish continuous improvement as a way of life.
- Make quality everyone's responsibility.

Concept of Internal Customer

An internal customer is a client who purchases products that are manufactured by the employer. The term can be applied in a number of situations, including company structures in which one department effectively purchases products from another as part of the manufacturing chain. At other times, an internal customer is simply an employee who purchased a finished good or service directly from the employer, sometimes at a price that is discounted from the pricing that is charged to other types of consumers.

The concept of an internal customer is somewhat different from that of an external customer. External customers are buyers who are not part of the company organization. For instance, if ABC Company chooses to buy widgets from XYZ Company, and the two companies are not subsidiaries of a larger business operation, the purchase is said to be external. Should ABC and XYZ actually be owned by JKL company and operate as subsidiaries to that parent organization, then the purchase would be considered internal.

Many different types of companies enjoy a flow of business volume from internal customers. **Retail** organizations often provide employees with opportunities to purchase goods at discounted prices, a move that prompts those employees to meet their needs by making purchases with the employer rather than buying from a competitor. In like manner, agents and administrative staff who work with insurance agencies may choose to take out policies with their employer rather than other agencies. Even with individuals who work with communication companies may be offered services such as DSL or audio conference services at a discount not readily available through other vendors.

One of the challenges for any business is to find ways to include internal customer care in the overall client strategy. Since the focus of many customer service and support operations is directed outward, the needs and concerns of a customer who is part of the organization can be overlooked. This can be counter-productive on a number of levels, sometimes to the point of losing business and having an adverse effect on how the employee perceives his or her contribution to the success of the company. Choosing to include components that provide incentives to each internal

Customers and suppliers must be integrated into the product development process in order to reduce the time to market. As product life cycles shorten, the appropriate products must be developed and successfully launched with ever-shorter time schedules in order for firms to remain competitive.

customer as well as afford them the opportunity to receive assistance when and as needed will often not only increase the desire to buy from within, but will also have the benefit of motivating those employees to be as productive on the job as possible.

Overview of TQM and LEAN Management

Retail is the sale of goods and services from individuals or businesses to the end-user. Retailers are part of an integrated system called the supply chain.

Total quality management is the continuous process of reducing or eliminating errors in manufacturing, streamlining supply chain management, improving the customer experience and ensuring that employees are up-to-speed with their training. Total quality management aims to hold all parties involved in the production process as accountable for the overall quality of the final product or service.

Lean management is an important part of lean thinking. As one implement lean in any organization the traditional way of managing does not guarantee right focus or help sustaining lean initiatives. If no action is taken to change the way one manage process, people and products one is likely to see failure of lean implementations. Many people on lean journey fail to apply lean in a holistic manner. Usually they start with applying tools without proper guidance and leadership the company cannot move to the next level. Thus a management system that specifically meets the needs of a transforming organization is very much essential.

One of the main characteristic of traditional management is that it is resulted oriented. Is it good or bad to be result oriented? It is not bad to have goals but once people stop caring about how to get there rather and only focus on end result that is when one has a problem. This leads malpractices like expediting orders, over production, and excess inventory. One must be wondering how management leads to these problems. If one is in any manufacturing organization he/she will be able to relate to this problem better.

1.2.2 Supply Chain System: Impact

The SCM typically involves supervising the transfer of products and goods, such as from a supplier, then to a manufacturer, a wholesaler, a retailer and finally to the consumer. Information technology (IT) refers to the use of computer-based programs

to store and manipulate information. IT advances directly can correlate to the SCM improvements, such as through the rise of effective virtual supply chains.

One significant impact of IT relates to the quality of information available within the supply chain. Companies can develop Web-based programs or intranets to distribute information, such as about new products, delays or changes. IT allows everyone in the supply chain to be integrated and thus, stay informed, which when used appropriately can translate into management efficiency and reduced risks.

Impact of Global Competition

Business today is in a global environment. This environment forces companies, regardless of location or primary market base, to consider the rest of the world in their competitive strategy analysis. Firms cannot isolate themselves from or ignore external factors such as economic trends, competitive situations or technology innovation in other countries, if some of their competitors are competing or are located in those countries. Companies are going truly global with Supply-chain Management. A company can develop a product in the United States, manufacture in developing country and sell in Europe. Companies have changed the ways in which they manage their operations and logistics activities. Changes in trade, the spread and modernization of transport infrastructures and the intensification of competition have elevated the importance of flow management to new levels.

The last two decades have seen the evolution of the global manufacturing environment. Majority of the manufacturers have global presence through exports, strategic alliances, joint ventures or as a part of a committed strategy to sell and produce in foreign markets.

Global Market Forces

There is tremendous growth potential in the foreign developing markets which have resulted in intensified foreign competition in local markets which forces the small and medium-sized companies to upgrade their operations and even consider expanding internationally.

There has also been growth in foreign demand which necessitates the development of a global network of manufacturing bases and markets. When the markets are global, the production-planning task of the manager becomes difficult on one hand and allows more efficient utilization of resources on the other. Few industries remain today in which the international product life-cycle theory still applies. Product markets, particularly in technologically intensive industries, are changing rapidly. Product-cycles are shrinking as customers demand new products faster. In addition, the advances in communication and transportation technology give customers around the world immediate access to the latest available products and technologies. Thus, manufacturers hoping to capture global demand must introduce their new products simultaneously

to all major markets. Furthermore, the integration of product design and the development of related manufacturing processes have become the key success factors in many high-technology industries, where fast product introduction and extensive customization determine market success. As a result, companies must maintain production facilities, pilot production plants, engineering resources and even Research and Development (R & D) facilities all over the world. Apple Computer, *for example*, has built a global manufacturing and engineering infrastructure with facilities in California, Ireland and Singapore. This network allows Apple to introduce new products simultaneously in the American, European and Asian markets. Companies use the state-of-the-art markets as learning grounds for product development and effective production management, and then transfer this knowledge to their other production facilities worldwide. This rationale explains why Mercedes-Benz decided recently to locate a huge manufacturing plant in Vance, Alabama. The company recognizes that the United States is the state-of-the-art market for sport utility vehicles. It plans to produce those vehicles at the Vance plant and introduce them worldwide by 1997.

REMEMBER

Manufacturing processes must be flexible in order to respond to market changes and must accommodate mass customization.

Technological Change

The SCM refers to the active management and control of materials, information and finances as they move in a process from acquisition of raw materials to delivery to the consumer. Radio frequency identification (RFID) involves fitting items with a small transponder, or RFID tag, which stores information about the item, allowing it to be identified and tracked. RFID offers some significant advantages over barcode technology in supply chain management.

The RFID technology does not require line-of-sight between the RFID tag and reader. This means that, unlike barcode technology, items do not require any particular orientation for reading. Radio waves travel through most non-metallic materials, so RFID can be read even if they are embedded or encased in packaging, provided they are within range of a reader. Furthermore, RFID readers can read RFID tags in thousandths of a second and can scan multiple items simultaneously.

This technology can be extensively used in the domains of business:

- Retail supply chain management and warehousing management.
- Logistics, tracking of goods & trucks.
- Shipping, container tracking, cargo tracking.
- Security systems etc.

The RFID is the technology for future. In the field of supply chain, establishing global standard will be a further boon for advancement of this technology as a whole.

Automation

Labor accounts for up to 80% of the total distribution costs of a typical distribution center. However, RFID technology can automate many supply chain activities including check-in, order picking and verification leading to reduced labor throughout the process. Even a small reduction in the amount of labor required can yield substantial financial savings, up to 90% in some cases.

Ethical and Environmental Issues on Operations and Supply Chain Functions

Environmentally Conscious Supply Chain Management (ECSCM) refers to the control exerted over all immediate and eventual environmental effects of products and processes associated with converting raw materials into final products.

While much work has been done in this area, the focus has traditionally been on either: product recovery (recycling, remanufacturing, or re-use) or the product design function only (e.g., design for environment). Environmental considerations in manufacturing are often viewed as separate from traditional, value-added considerations. However, the case can be made that professional people have an ethical responsibility to consider the immediate and eventual environmental impacts of products and processes that they design and/or manage.

ROLE MODEL

CEO OF ADIDAS GROUP: HERBERT HAINER

Mr. Herbert Hainer was Born in 1954 in Dingolfing (Bavaria),and holds a Degree in Business Studies.

Prior to Adidas he was working with Procter and Gamble as a Division Manager Sales and Marketing. He Joined Adidas in 1987 and held the responsibility as the sales Director Hardware (Bags, Rackets, Balls) and later the portfolio was altered to (Footwear, Textiles, Hardware).

Further he served as the National sales director between 1991 till 1993; during 1996-1997 he became the Senior Vice President Region Europe, Africa, Middle East.

From Jan 2001 till March 2001 he was the deputy Chairman of the Executive Board, He became the CEO of Addidas AG* In march 2001.He has been a member of the executive since march 1997 and was raised to the Position of Deputy chairman Of the board.

What Is The Moral Here?

Like everyone, Adidas is feeling the pinch. Q2 2009 results were down though better than expected and all eyes are on President and CEO Herbert Hainer, the man who oversaw the sale of Salomon, to better focus on core competencies, and the reeling in of Reebok, for benefits of scale and a better footprint in that all important US market. Can Hainer deliver the ultimate prize, and make Adidas world no. 1? We learn how leaders drive a culture of innovation and how to learn from the best of the past, while driving your business forward.

SUMMARY

- A supply chain is a network of functional organizations that through their activities perform the logistics functions.
- Delivery includes order management, warehousing, and transportation. It also includes receiving orders from customers and invoicing them once product has been received.
- Effective supply chains give businesses a competitive advantage in the marketplace and help mitigate risks associated with acquiring raw materials and delivering products or services.
- Managing risk is a key responsibility for business leaders, and supply chain management systems allow for the identification of critical risk factors in an organization or with their suppliers.
- The Supply Chain and Operations Management (SCOM) major examines the integration of all key business processes from original suppliers through end users and provides products, services, and information that can add value for customers and stakeholders.
- Qualitative performance measures are those measures for which there is no single direct numerical measurement, although some aspects of them may be quantified.
- An internal customer is a client who purchases products that are manufactured by the employer.
- Total quality management is the continuous process of reducing or eliminating errors in manufacturing, streamlining supply chain management, improving the customer experience and ensuring that employees are up-to-speed with their training.
- The SCM refers to the active management and control of materials, information and finances as they move in a process from acquisition of raw materials to delivery to the consumer.

KNOWLEDGE CHECK

1 A supply chain is a sequence of firms that perform activities required:

a. to find products that are similar

b. to facilitate wholesalers inventory selections

c. to create synergy in their training programs

d. to create and deliver goods to consumers

2 A supply chain is essentially a sequence of linked:

a. customer and prospects

b. supplier and manufacturer

c. suppliers and customers

d. warehousing and wholesaling units

3. The objective of a supply chain is:

a. to improve the efficiency across the whole supply chain

b. to improve responsiveness across the whole supply chain

d. to improve the efficiency and responsiveness across the whole supply chain and also deliver improved value to the customers

c. to improve the responsiveness across the whole supply chain and deliver improved value to the customers

4. The sequence of a typical manufacturing supply chain is

a. Storage–Supplier–manufacturing–storage–distributor–retailer–customer

b. Supplier–Storage-manufacturing–storage–distributor–retailer–customer

c. Supplier–Storage-manufacturing– distributor–storage–retailer–customer

d. Supplier–Storage-manufacturing–storage– retailer–distributor–customer

5. The purpose of supply chain management is

a. provide customer satisfaction

b. improve quality of a product

c. integrating supply and demand management

d. increase production

REVIEW QUESTIONS

1. What do you understand by supply chain? Explain its advantages.
2. Explain the elements of the supply chain
3. Describe the significance and functions of operations and SCM.
4. Explain the quality of supply chain system.
5. Understand by impact of global competition.

CHECK YOUR RESULT

1. (d) 2. (c) 3. (c) 4. (b) 5. (c)

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CHAPTER

2

SUPPLY CHAIN MANAGEMENT PROCESSES

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

1. Describe the basic concept of planning
2. Explain the procurement in SCM
3. Understand by transportation

INTRODUCTION

Successful supply chain management requires cross-functional integration of key business processes within the firm and across the network of firms that comprise the supply chain. The SCM process is guided by principles that provide guidance. When properly applied, they lead to best practices in the SCM process.

It is focused on relationship management and the performance improvements that result. In many companies, however, executives struggle to achieve the necessary integration and, consequently, the resulting improvements. The problem is that they don't fully understand the supply chain business processes and the linkages necessary to integrate those processes.

Process and tools for supply chain success will improve your ability to:

- Conceptualize supply chain objectives and processes to facilitate improvement opportunities

- Understand the expectations of global supply chains and how to leverage appropriate tools and technologies to achieve supply chain success
- Recognize the benefits that can result from demand-driven supply chains and those that successfully align sales and operations strategies
- Implement appropriate supply chain processes and tools to better manage the flows of products and information, and to enhance supply chain effectiveness and financial results
- Align supply chain practices and priorities with overall organizational goals and objectives
- Increase the speed and precision of delivery of needed materials, and also to identify and realize overall supply chain improvements
- Identify processes that may be used to better manage closed-loop supply chains and to achieve environmental sustainability
- Understand the imperative for leadership, and for strategies and techniques for successful implementation

2.1 BASIC CONCEPT OF PLANNING

The plan process seeks to create effective long and short range supply chain strategies. From the design of the supply chain network to the prediction of customer demand, supply chain leaders need to develop integrated supply chain strategies.

In the supply chain, key challenge for planning activities is to determine the location, quantity and the type of customer demand and to organize and manage the resources required to fulfill it. Key building blocks for the success of such an endeavor for every company are successful supply chain network design, supply and demand planning, and production planning and scheduling.

Supply Chain Network Design

Designing an optimal network structure is a difficult task. Supply chain network configuration refers to decisions regarding the number, location, capacity and functional characteristics of the production, distribution and retail facilities in a Supply Chain. These issues arise in case of acquisitions, growth, market developments and geographical expansion. Making decisions to expand, contract, or modify the supply chain network is critical, has an important impact on performance and can be costly if not planned properly.

Major decisions regarding the supply chain network configuration should be based on tradeoffs between customer expectations and location response speed, production, storage and transportation costs, product variety and characteristics, local regulations and investments. These all can determine the best network structure for the company.

Supply and Demand Planning

Appropriate supply and demand planning has a great impact on the performance of the supply chain. Through this process the organization identifies external requirements (demand) and aligns its own resources (supply) appropriately to meet them in the most cost effective way.

KEYWORD

Material Planning is an alternative term which is use for materials management.

The first step is to arrive at the expected customer demand for the period. This may include forecasts for make-to-stock items or sales orders for make-to-order items. The second step is to determine how much each point of the supply chain needs to order. Expected demand is to be taken into account as well as current supplies, delivery periods, storage/ production capacity and inventory management policies. Inventory management policies (safety stocks, volume and frequency of ordering, stock placement in the supply chain) are a critical component of supply planning affecting both the cost and the service level. The third step is to combine these into a coherent, agreed upon supply and demand plan that will drive operations for the period.

Production and Material Planning

The goal of production and **material planning** is to help one produce the products more efficiently. Agreed supply and demand plans need to be transformed into feasible and meaningful production and purchasing plans and schedules. The production and material planning process determines when a specific production order needs to be produced and

on which production line. It also takes into account the availability of resources and components. Purchasing/production orders are generated in time to decrease supply costs without endangering the production process.

An effective production and material planning process supports the management and synchronization of master production schedules, material and capacity requirements, tactical maintenance needs, personnel resources as well as the scheduling/sequencing of jobs through the factory floor in order to achieve business objectives (meet customer orders, contain/reduce cost) within the supply chain constraints. It is one of the most critical processes for controlling costs and achieving efficiency.

Synchronize Enterprise-Wide Production, Supply and Demand

Manufacturers face escalating supply chain challenges. They have decentralized their operations and shifted production to different cities, states and even countries in an effort to reduce costs. They must deal with shrinking product lifecycles and simultaneously cope with increasingly demanding customers.

As these trends fragment manufacturing operations, manufacturers face a fundamental, competitive need to reduce costs, eliminate inventories, and link their production and procurement activities more tightly with actual demand. They need a solution that enables them to account and plan for enterprise-wide demand.

Supply chain planning enables manufacturers to synchronize enterprise-wide production and supply with enterprise-wide demand. The solution allows manufacturers to aggregate total demand and centrally plan for the production capacity and supplies required to satisfy that demand. Supply Chain Planning consolidates sales, production, inventory and purchasing information to help companies become more demand-driven and actually manufacture items based on real demand.

In today's demand-oriented market, to optimize and integrate sales and logistics and then incorporate that data into the production schedule in a timely manner is absolutely critical. Supply Chain Planning delivers substantial benefits to manufacturers enabling them to:

- Increase responsiveness to market changes
- Improve visibility into aggregated demand, enterprise-wide production and supply
- Reduce inventory levels
- Improve customer service and on-time delivery performance
- Optimize supply to meet demand profitably
- Lower inventory, distribution and transportation costs
- Increase demand forecast accuracy with compressed planning cycle times
- Move Planning Closer to Demand

Move Planning Closer to Demand

Supply Chain Planning helps manufacturers increase responsiveness by shifting the planning process closer to actual demand. Manufacturers can then synchronize production and procurement activities with actual demand more effectively and in the process lower costs, decrease inventory levels and improve customer service.

By synchronizing internal and external supply chain processes, **Supply Chain Planning** helps manufacturers transform themselves into demand-driven organizations, flexible enough to respond quickly to changes in the market.

Supply Chain Planning is the component of supply chain management (SCM) involved with predicting future requirements to balance supply and demand.

Total Demand Visibility

Supply Chain Planning increases manufacturer's visibility into enterprise-wide demand by aggregating forecasts and sales orders created by customers and local sales offices into one, comprehensive demand stream. This demand stream can be organized in a wide variety of ways by corporate entity, customer, customer type, product family, or end team to allow corporate planners to see when, where and what kind of demand is being generated.

This enterprise planning solution provides users with complete visibility into aggregated demand through a single, easy-to-use screen. Planners can adjust this demand based on the historic accuracy of the various demand streams.

Demand is the utility for a good or service of an economic agent, relative to his/her income.

Enterprise-Wide Planning

Supply Chain Planning provides visibility into **demand** and also allows manufacturers to determine the optimal way to fulfill that demand based on available enterprise-wide supply and production resources. From the same screen, planners can see the production and inventory required to meet demand in user-defined time buckets. Supply Chain Planning allows users to drill into demand details to see how supporting production and supply plans were created as well as to make any changes necessary to meet the demand or achieve business objectives more effectively.

This ability to plan production and procurement activities centrally against aggregated demand is essential for manufacturers who wish to realize strategic business objectives such as cost reduction or improved responsiveness.

The enterprise planning capabilities of enables manufacturers to allocate demand intelligently to the most appropriate production facility based on lowest manufacturing cost or available resources, including capacities and inventories, transport costs and lead times from facility to customer.

Supply Chain Planning ensures that manufacturers optimize their production and procurement activities on an enterprise-wide basis. The module enables planners to allocate demand to individual factories for further planning and fulfillment.

2.1.1 Support for Global PSI Planning

Supply Chain Planning provides full support for Global PSI (Production, Sales, and Inventory) planning commonly used by leading electronics and high volume manufacturers. The solution contains a global model of production resources and inventory that can be used to fulfill demand. The Global PSI model is created from multiple Local PSI models generated from the production planning or materials planning systems in use at each factory.

Key Capabilities

Supply Chain Planning provides advanced capabilities for manufacturers including:

- Accurate visibility of demand across product lines, geographies and customers by aggregating information from multiple sources
- Accurate visibility of enterprise-wide production capacity and supply requirements
- Optimization of key activities within a manufacturer including production, procurement and distribution
- Multi-tier, multi-enterprise planning collaboration between trading partners.

2.2 PROCUREMENT IN SCM

Procurement is the business management function that ensures identification, sourcing, access and management of the external resources that an organization needs or may need to fulfill its strategic objectives.

Procurement exists to explore supply market opportunities and to implement resourcing strategies that deliver the best possible supply outcome to the organization, its stakeholders and customers.

Procurement applies the science and art of external resource and supply management through a body of knowledge interpreted by competent practitioners and professionals.

One of the difficulties in defining the term 'procurement' is that it does not deal with a single action or process. Procurement covers the complete range of events from the identification of a need for a good or service through to its disposal or cessation.

The term 'procurement' in Australia is very similar to the term 'supply management'.

Procurement includes activities and events before and after the signing of a contract as well as the general management activities associated with a range of contracts:

- Pre-contract activities such as planning, needs identification and analysis, and sourcing,
- Post-contract activities such as contract management, supply chain management and disposal, and
- General activities such as corporate governance, supplier relationship management, risk management and regulatory compliance.

Procurement delivers a range of benefits. It not only seeks to reduce costs and to ensure supply, it also supports

Procurement is the acquisition of goods, services or works from an outside external source.

strategic organizational objectives such as market expansion and product innovation.

The other terms one use, 'supply management' is very similar to the term 'procurement' and might be a synonym, but other common terms generally relate to just part of the overall process captured by procurement. Strategic **procurement** is one, it relates to the strategies and mechanisms used to approach and interact with the supply market that take account not just of present business needs but also what the organization's business future needs might be.

The business requirement is to source some software to help to get information published on the company intranet. An item of software to publish information on the company intranet is a solution not a requirement. The requirement is to be able to publish information on the intranet. It may be that an outsourced solution is a better option.

Procurement Process

The procurement process can be divided into five steps.

Define the Business Need

One needs to understand what the fundamental business requirement is. At this point, it is important to understand the difference between a requirement and a solution.

Develop the Procurement Strategy

Depending on the scale of the project, there could be a very wide range of potential solutions and approaches to the business need and a number of ways of researching the market and selecting a supplier.

Supplier Selection and Evaluation

After researching the market and establishing the procurement approach, one needs to evaluate the solutions available. This may involve a formal tender process or an on-line auction. One criterion's for comparing different solutions and suppliers are critical. Weight the key criteria heavily and do not attach too much importance to aspects that will have little impact on the solution.

Negotiation and Award

Even when one has selected a supplier it is important that detailed negotiations are undertaken. This is not just about

price. Think in terms of Total Cost of Ownership. A cheap product is not so cheap if the carriage costs are huge or if the maintenance contract is onerous.

Consider carefully the process by which the goods or services will be ordered and approved; how they will be delivered and returned if necessary; how the invoice process will work and on what terms payment will be made. Considering the whole purchase to pay process (P2P) at the outset can reduce costs and risk significantly.

Induction and Integration

No goods or services should be ordered of delivered until the contract is signed, but this is not the end. It is vital that the supplier is properly launched integrated. The P2P process needs to be in place and need to be understood on both the buy-side and the supplier side. Any service levels that have been agreed need to be measured and KPIs put in place. Regular reviews should be established.

Figure 2.1: Steps of the procurement process.

Purchasing refers **to a business or organization attempting to acquiring goods or services to accomplish the goals of its enterprise.**

2.2.1 Comprehensive Managed Procurement Services

A procurement service is an independent firm that specializes in providing dedicated procurement support to organizations, large and small. Procurement or **purchasing** is the sourcing of goods and services for use in a business environment. Most large firms have a dedicated procurement department, staffed with procurement officers and buyers. The purpose of a procurement service or department is the same, to obtain the best possible combination of price, service, and quality for the organization.

Most procurement services focus on a specific aspect of procurement. *For example*, an electronic procurement firm will have a complete software package that the firm will operate and manage on behalf of the client. The client will receive orders from customers and submit invoices to the procurement service. All the transactions in between, management, support of the technology, and the creation of business processes, is the responsibility of the procurement service.

There are two common types of traditional procurement services: strategic sourcing and purchase order management. Strategic sourcing refers to the process of issuing and managing bids, quotations, and requests for proposals, tender management, and related processes. This type of procurement service is usually billed on a per project basis, as the type of staff and time required will vary by project.

A purchase order management service is responsible for performing the primary function of a buyer within the organization. The service receives requests from staff for specific materials. The firm then reviews the existing contracts, identifies a suitable supplier, confirms the price and delivery is acceptable to the client, and places the order. The purpose of this type of service is to reduce the overhead costs for small to medium size firms that do not have sufficient volume of purchasing activity to justify a full-time buyer, but would like to capture the cost savings associated with a more formal procurement process.

The use of a procurement service is often seen by staff as outsourcing of essential functions and administration jobs. From a business perspective, the savings a professional service can achieve far exceeds the cost. In addition, the service is completely independent of the firm and would have no bias or preference for a specific supplier or firm.

When looking for a procurement service, it is best to ask for references. Take the time to check the details and talk with the professionals about their experience, the issue resolution process, and billing procedures. Many procurement service firms bill based on a portion of the dollars saved.

2.2.2 Outsourcing Advisory

The competency area is indeed unique (compared to conventional advisory services) and requires firms and consultants who possess the depth of domain expertise to take their clients through the whole sourcing lifecycle (from pre-contractual feasibility analysis through to 'business-as-usual' vendor/contract management).

The service is more frequently and appropriately referred to as Strategic Sourcing advisory.

The term outsourcing is often not focused enough to properly describe the vast array of activities and requirements in today's dynamic environment. Terms such as off-shoring, near-shoring, in-sourcing and just plain sourcing also get used in many of the situations that previously would have been referred to as outsourcing situations.

For many C-Level executives, the task of working out how to decide what needs outsourcing (and what does not) is a significant challenge and requires a strategic sourcing advisory expert who has a good track record of dealing with similar (or larger) problems just to get to the point where sensible and justifiable business decisions can be make about how to effectively save costs and resources in a sourcing project.

2.2.3 Procurement Capability Health Check

The capability health check is a quick and easy way to review and identify any potential capability issues in the business, and what one can do to fix them.

Communications, media, and technology companies are facing some powerful trends in the convergence of technologies, channels, and services. These disruptive forces are creating not only skirmishes for positions within supply chains but also opportunities both in terms of reducing costs and influencing innovation.

Increasing competition means that organizations in both public and private sectors need to concentrate on what they do best. Effective procurement strategies and well managed supply chains enables organizations to focus on developing and delivering products and services that exceed customer expectations.

Procurement health check provides a complete view of current organization, processes, spend patterns and performance in comparison with best practice measurements and world class approaches. Using the results of the health check, someone will provide one with a set of practical improvement recommendations for any areas that are not performing effectively.

2.2.4 Distribution

Alongside product management, promotion, and pricing, distribution is one of the four key components of marketing. In simple terms, distribution provides an inlay between the producer of a product and the seller of that product. After a product is made, it is usually then sold to a distributor, who in turn will sell the product either directly to customers, or to retailers who will in turn sell it to customers.

Distribution has been related to questions in the field of logistics, namely, how one gets a particular product to a customer. Thus, the distribution end of supply chain management must contend with such decisions as to whether to sell the product directly, or through a retailer; whether the product should be distributed on a wholesale basis; whether the product should be sold via multi-level marketing channels; whether members of the channel should share advertising costs, etc.

The Channels of Distribution

Quite often, there is a chain of intermediaries who pass the product down to other organizations. The product might change hands several times before it eventually reaches the customer. This is what the "distribution channel" means. The producer has to take in to account the fact that each level of the distribution channel might have particular needs they are hoping to have fulfilled by the product and that is before it even reaches the end user!

Several distribution channel options might be available, depending on the exact nature of the product or service one is offering. It might be best, *for example*, for someone to eliminate the channel altogether and sell direct via the Internet, mail order, or the telephone. Or one can go through an agent, who will sell the product directly on behalf of other. Alternately, one can use a distributor, who will sell the product to retailers. They, in turn, will make sure the product get to end customers.

There are many ways by which a product might be sold. But services are also sold in this fashion. Hotels often sell their service, which is essentially a room, via travel agents, airlines, centralized Internet portals, etc.

In fact, recent years have seen a number of innovations in the sector of service distribution. One instance has been a vast increase in rental services as well as franchising. Rental services these days might offer anything from tools through televisions and beyond.

There has also been a lot of integration in the service industries, with two or more related services coming together to offer related services. This is particularly evident in the area of tourism and travel. Sometimes, one can rent a car, book a flight, and book a hotel all on the same website. There is also an increasing demand for retail outlets for services. In shopping centers, one can easily find travel agencies, real estate companies, and more service providers.

There can be a number of different levels to each distribution channel. There are the zero level channels, which involves distribution with no intermediaries whatsoever. The one level channel involves one intermediary in the case of consumer goods; this usually refers to the retailer. If it is industrial goods someone's are talking about, then that one intermediary will generally be a distributor. For smaller markets, using a zero or one level scheme can be quite practical and effective.

For larger markets, however, it is generally better to use a two level system, which will involve a wholesaler. This enables a ton of smaller retailers to receive and sell the product. The Japanese market uses even further levels than this, having evolved a highly complex distribution system for even simple consumer items.

The marketing techniques that one applies to external customers of the company can also be applied to each division's internal customers, as well. This might come about in the form of a formalized arrangement, wherein goods are transferred to different units in the distribution channel at a "transfer price." When this happens, all sides should view the interaction as a normal relationship between a buyer and a seller. The same marketing techniques can thus be employed.

What is more, administrative and service divisions of the business can also employ marketing techniques. These techniques can be used to optimize their relationship with their customers, who may only be the other members of the organization. The way that non-profit organizations have typically dealt with their clients is a good example for this.

Merger Integration

Merger integration, post-merger integration refers to the aspect of an organizational merger that involves combining the original socio-technical systems of the merging organizations into one such newly combined system.

Workflow

Workflow can be a means of implementing value chains that operate across and between organizations. A status update on which vendors can offer this capability is provided together with an explanation of how the capability of particular vendors can be assessed. The delivery of business through E-Commerce involves the deployment of business processes for which workflow is an obvious supporting technology.

An ultimate success of supply chain management depends on its ability to rapidly and cost-effectively collect, organize, and analyze data and disseminate information throughout the supply chain. In order to accelerate the information flow in supply chain and make some of the operation among partner process can process automatically without user intervention.

Management Visibility

Cutting-edge visibility solution is based on extensive market research, customer insights and logistics management experience. It is a single, web-based access point to end-to-end supply chain information and the modular format makes it easy to tailor to specific requirements. This solution enables order management, inventory management, event management, reporting/business intelligence and integration of data from multiple partners in the supply chain.

Security

Procedures should be in place to mitigate security risks to the supply chain, such as theft during storage and transportation and product diversion.

Thefts of cargo during transportation or from warehouses can occur at any point in the supply chain. Legitimate packaging and labeling materials can also be stolen or diverted in order to form counterfeited products. Thefts can be targeted to specific products, *for example* those of high value, or opportunistic where the cargo contents are unknown to the perpetrators at the time of the theft but do contain medical supplies. Procedures should be in place to evaluate the risk of theft and to establish procedures to respond to a theft when it occurs.

2.2.5 Customer Interface

During the development of complex systems, there are dependencies and commitments among the producers of products (including products in intermediate stages of production) and the people for whom these products are intended that is, the customers.

Customers have requirements for and expectations of what the producers will provide and may communicate them either in a highly structured fashion (such

as in a formal requirements document) or in an informal way (such as when an interdisciplinary integrated product team has producers and customers working side by side). In the case of a commercial product produced and mass-marketed for end-user consumption, the "agreement" is the one between the vendor and the perceived demands of the marketplace, possibly gathered through surveys or interviews with proxy groups standing in for the customer community at large.

Understanding and managing the commitments between the organization's producers and customers will require the organization to manage its customer interface. Managing a customer interface also involves ensuring that those in the organization with customer responsibilities are trained properly in their roles and applicable processes.

Organizationally, the customer interface must be managed from a multiple-product, multiple-customer perspective as opposed to a single-product, single-customer (or single-customer-base) perspective. This means that those responsible for interacting with a particular customer about a product must act on behalf of both the customer and the product line organization at large.

Over time, customers will want new products or features and ask the product line organization to add to existing products. These requests will have to be evaluated from two dimensions: the feasibility of carrying out the desired changes and the desirability of including them in the current or future development cycles. The product line's scope will address the first aspect, while a business case will address the second. From a strategic perspective, features that have widespread appeal represent tangible opportunities to expand the product line.

These considerations mean that some of the traditional customer-interfacing roles will have to extend their interaction to consider the entire product line.

For example, the architect and requirements engineers certainly need to understand the requirements of each individual customer. But they also need to understand them in the context of the overall product line. They may even need to "nudge" a customer's requirements where possible to gain closer alignment with the other products in the family, so as to achieve higher usage of the existing core assets and achieve faster time to delivery and lower cost.

Demand Planning

Demand planning is a multi-step operational supply chain management (SCM) process used to create reliable forecasts. Effective demand planning can guide users to improve the accuracy of revenue forecasts, align inventory levels with peaks and troughs in demand, and enhance profitability for a given channel or product.

The approach begins with a statistical forecast. Data sources for the **forecast** include planned sales orders, customer contracts and intercompany standing orders. The final forecast is shared with key stakeholders, such as suppliers.

Demand planning is a business process companies go through as part of their supply chain activities. This activity has a twofold purpose: drive consumer demand and increase the company's ability to meet increased demand. Companies spend money on advertising, higher-quality materials, or promotions to increase consumer awareness. Companies also look to increase profits and reduce expenses through demand planning.

In a free market society, an economy has supply and demand. Supply is the goods or services offered by businesses. Demand represents the desire for goods and services by consumers. Companies look to reach equilibrium where the supply of goods and services meets consumer demand. This equilibrium point typically results in the highest profits for a company.

REMEMBER

Demand for goods or services increases, companies must move products through the supply chain swiftly to meet demand.

Figure 2.2: Demand planning.

- *Acquiring Demand Data*: To develop an effective forecasting framework, it is essential that the historical demand data is stored properly. It is important to ensure integrity and correctness of data. Better the quality of data higher is the probability of getting effective forecasts. Also, to start the forecasting process data has to be arranged in a preset format.
- *Missing Value Treatment*: Missing value treatment is one of the important steps for data preparation in statistical forecasting. A missing value is a blank/ missing data point between available demand data points. It can be treated by using different imputation

techniques like neighborhood value, substitution with a measure of central tendency, mean/median imputation and various customized techniques

- *Outlier Treatment*: An observation is said to be an outlier if it is far away from the remaining demand data points. Statistically, these extreme values can screw the forecasting numbers. Outlier treatment is carried out using various techniques like IQR, standard deviation techniques, capping/flooring approach etc.
- *Optimization*: Post outlier treatment, demand data becomes ready for forecast generation. Demand data is subjected to different forecast generation techniques like moving average, exponential smoothing, ARIMA etc. and the best technique is chosen for forecast generation based on criteria's like MAPE, MSE etc.
- *Forecast Generation*: Once optimization is done, forecasts are generated for the future period using the best technique chosen for forecasting.

Demand planning has now become a more complete view of the business. It is not merely forecasting. It strives to manage all the activities associated with discovering markets, planning products or services for those markets and then fulfilling the customers 'demand'. It is an integrative set of processes across, not just the enterprise, but the trade partner network.

Companies can typically control their supply of goods and services. They can increase or decrease output based on the amount of materials they purchase and convert into goods. Demand is often out of their control, however. This leads to demand planning, where companies influence consumers into purchasing goods and services. Starting this process involves analyzing markets to find underserved consumers in terms of a company's goods or services.

Advertising campaigns are a common form of demand planning. Companies present a message to induce consumers to purchase goods and services. In some cases, a company may send a large batch of goods to a region and sell them at a lower price

than other markets. This induces demand because the company can claim inventory overstock requires the business to sell goods quickly. Companies can also saturate a market by selling goods at multiple retailers.

Demand planning may also result in creating different market strategies for different regions.

For example, a company may sell goods at a high price with low stock in one region. This will increase demand because consumers believe the good is high quality and in demand due to low inventory. Another region may benefit from low prices due to high local competition. Companies need a large stock of goods there to avoid running out, which would drive consumers to substitute products.

Companies need to work supply chains differently based on their demand planning strategies. Low stock areas may require a just-in-time inventory model. This involves the ability to deliver goods quickly and without interruption. Other strategies require the use of distributors and warehouses. Each region has a system to ensure the right supply of goods at all times.

Key steps in demand planning include:

- Importing historical sales data
- Creating statistical forecasts
- Importing customer forecasts
- Collaborating with customers
- Managing forecasts
- Building consensus forecasts
- Supply and demand collaboration
- Securing constrained forecasts
- Confirmation with customers
- Reexamining data and adjusting planning accordingly.

Customer Support

Customer support is another term for customer service. It involves methods that create a positive experience for a customer. A business needs customers in order to become and remain profitable, and if the customers are not happy, they will not patronize the business again and they might recommend that their friends also do not patronize the business. Good customer support involves responding promptly to customer questions and complaints, acting on every promise made, listening, being helpful and adding extra touches to the customer's experience.

Few things are more frustrating to customers than when a business does not respond to questions, comments or complaints that they might have. The general rule of thumb

for businesses to use when communicating with anyone is to return his or her correspondence within 24 hours. No matter the nature of the correspondence, responses should always be kept polite and professional. The ultimate goal is to win a new customer or keep an old one by righting a wrong or providing more information.

Customers are quick to remember each time that something has been promised to them, and they will expect those promises to come to fruition. Keeping detailed notes of some sort might help a business owner remember exactly what has been discussed with each customer. Customers will appreciate the attention to detail and might patronize the business again or recommend it to others.

Something as simple as listening to customers is another way to show good customer support. When customers are spending their hard-earned money, they want to know that someone is considering their needs and wants. This also might offer the business owner a clearer picture of what the customer is looking for and how he or she might help.

Businesses also must remember that if a promise is made to a customer, it must be kept.

Genuinely caring for people might go a long way in showing good customer support. Customers enjoy feeling as if someone cares about them and their well-being, and they generally respond well to it. Guiding the customer to an item for which he or she is looking, taking the time to answer questions about the product or offering to order something that is out of stock are all ways to show good customer support.

Few things stick with a customer longer than knowing that someone took the time to add something extra to his or her product or service. This helps a customer feel as if he or she is getting added value for his or her money. It is not necessary to do something grand or expensive; things such as offering information about additional uses for a product, giving ways that he or she might save some money and still find what they are looking for or giving background information about a product are all ways to give the customer something extra.

Regional Sales Teams

A regional sales team is a person who coordinates and supervises the sale of a company's goods and services across a specified physical district. He or she may be responsible

for finding new clients or buyers in an area, distributing promotional items and advertisements, managing a team of sales representatives, and conducting professional customer service. A successful sales manager must have excellent communication and problem solving skills, understand the economic principles of supply and demand, and are capable of making important decisions.

Competent sales managers are essential in companies that market products to the general public as well as those that supply smaller distributors. A regional sales manager is often required to travel to different cities or stores within a district to speak with dealers and distributors who may be interested in carrying a product offered by the company. He or she constantly analyzes statistics regarding the number of sales made in a given time period, the resulting profits, and the need for new clients and inventory.

A sales manager at a large corporation is usually responsible for training, organizing, and directing a team of representatives. The manager works closely with his or her team to identify sales goals, create and implement strategies, and evaluate performance. He or she might supervise representatives as they place phone calls or accompany them in physical meetings with potential buyers. The sales manager may be required to intervene to settle a dispute or discrepancy about an order and ensure that the buyer is ultimately satisfied.

The majority of communication and order processing at modern companies is done through email and Internet websites. A regional sales manager must be comfortable working with different types of computer programs, email servers, spreadsheets, and word processing software. He or she is often required to keep detailed electronic records of client information, past sales records, pending shipments and payments, and employee information.

To become a regional sales manager in most industries, an individual must typically obtain at least a bachelor's degree in business administration, marketing, finance, or a similar field. Many large companies require sales managers to hold master's degrees and attend specialized training to prepare them for the job. A large number of employees prefer to promote successful workers from within their companies to the ranks of managers, rather than hiring new individuals who are unfamiliar with company policies and regulations. A new regional sales manager typically begins his or her career by working as an assistant to an established professional, learning the fundamentals of the position and becoming familiar with specific procedures.

Develop Systems to Improve the Response Time to the Internal Customers

Internal customer service is the service one provides fellow employees and other departments within our own businesses, as well as our suppliers and anyone else with whom someone work to get our jobs done.

Improve the response time to the internal customer service are as follows:

Set customer service Standards

With the team, create customer service standards (both internal and external). Thinking through the process and setting standards for response times for things like emails, phone calls or internal requests help to set expectations for employees. Employees should be held accountable for responding to a co-worker's request within a predetermined period of time.

Lead by Example

Lead by example: treat others like one want to be treated. Be friendly, compliment staff where possible encourage them and show the appreciation. Do not ever criticize them in public. It is humiliating for them and reflects badly.

Regard the Co-workers as Customers

Treat the co-workers with respect: regard them as the customers. Understand that helping the colleagues do their jobs more successfully helps the organization. Therefore they are the customers.

Exceed the Internal Customers Expectations

When someone exceeds the expectations, how do someone feel? Most people feel delighted, excited, upbeat and very, very positive about that person and his or her organization. Think what one can accomplish in the organization by exceeding the expectations of fellow employees.

Service Status to the Customers

The process of ensuring customer satisfaction with a product or service. Often, customer service takes place while performing a transaction for the customer, such as making a sale or returning an item. Customer service can take the form of an in-person interaction, a phone call, self-service systems, or by other means.

2.3 TRANSPORTATION

Transportation is one of the most visible elements of logistics operations. The role of transport in national economy is very crucial. Every business firm, regardless of what it produces or distributes, requires the movement of goods from one point to another and, therefore, is involved in transportation. Transportation essentially concerns the spatial dimension of the business firm. "The spatial dimension refers to geographical

relationships and reflects the combination of firms with respect to their materials sources, markets, and competitors, plus the spatial relations of the latter to their sources and markets".

The purpose or function of transportation is to serve as a connecting link between the spatially separated units within a firm's own organization (such as between plants and warehouses) and between units of the firm and units of other firms and individuals (such as suppliers and customers). Good transportation has the effect of holding to a minimum the time and cost involved in the spatial relationships of the firm.

Transportation Utility

In economic theory terms, transportation's function is to create place utility for the goods produced or distributed by the firm. The word "utility" means usefulness or ability to give satisfaction. Place utility exists when goods are in the place where they can be consumed. Goods that are not in the place where they are needed have less than full value and so transportation creates value by creating place utility. Along with the necessity to have goods in the right place, the goods must be there at the right time (time utility) and in the right form (form utility) and in the possession or ownership of the person(s) who wants to consume them (possession utility).Whether it is delivering goods to a warehouse to serve markets, moving goods into storage for future use, or forming an integral part of a Just-In-Time system and delivering goods at the exact point in time they are needed. Without place, time, form, and possession utility, goods have no value to the customer. In abroad sense, the production process is really not complete until all four utilities have been created because until then goods

are not capable of giving satisfaction and would not prompt a customer to exchange something of value for something with no value. Thus, transportation is an essential part of the total production process that cannot be overlooked.

2.3.1 Role of Transportation

We can elaborate transportation as follows:

Transportation in Production and Marketing

In production, transportation function is looked after by executives of materials management department or general administration department or general department. A part of the transportation function can be tagged on to purchase of materials, but the total transportation planning concept requires higher in depth skills and expertise than are contributed by a purchase executive who is even otherwise preoccupied with the responsibilities of his complex purchase function. Bogged down in routine procedures of purchase, he is unable to plan adequately for transportation of various types of materials, plants and machinery in such a way as to optimize the expenditure of his own efforts and monetary resources. Transport of the finished product is often left to the marketing manager. However, a marketing manager is oriented more towards marketing of the product and development of market than towards optimization of transportation cost, time or effort. The responsibility for estimates of arrival times at loading and unloading points of machinery, raw materials, etc., is often entrusted to those executives who have no personal knowledge of the subject, but who collect second-hand information on it from different sources. Moreover, while construction of a plant may be assigned considerable importance, movement of the finished product, raw materials and project materials may not be adequately provided for in a project report. Problems of transport of the finished product are sought to be attended to only at a later date.

Modal Characteristics

Modes of transportation used in national and international logistics and supply chain management can be grouped under five models. They are rail, highway, water, pipeline, and air. The relative importance of each mode can be measured in terms of system mileage, traffic volume, revenue, and the nature of traffic composition. Each mode is discussed with respect to these measures.

Motor Carriers

Highway transportation has expanded rapidly since the end of World War II. To a significant degree the rapid growth of the motor carrier industry results from door-

to-door operating flexibility and speed of intercity movement. Motor carriers have flexibility because they are able to operate on all types of roadways. In comparison to railroads, motor carriers have relatively small fixed investments in terminal facilities and operate on publicly maintained highways. Although the cost of license fees, user fees, and tolls is considerable, these expenses are directly related to the number of over-the-road units and miles operated. The variable cost per mile for motor carriers is high because a separate power unit and driver are required for each trailer or combination of tandem trailers. Labor requirements are also high because of driver safety restrictions and the need for substantial dock labor. In comparison to railroads, motor carriers are best suited to handle small shipments moving short distances. The characteristics of motor carriers favor manufacturing and distributive trades, short distances, and high-value products. Motor carriers have made significant inroads into rail traffic for medium and light manufacturing. Because of delivery flexibility, they have captured almost all freight moving from wholesalers or warehouses to retail stores. The prospect for maintaining stable market share in highway transport remains bright. The primary difficulties relate to increasing cost to replace equipment, maintenance, driver wages, and platform and dock wages. Although accelerating labor rates influence all modes of transport, motor carriers are more labor-intensive, which causes higher wages to be a major concern. To counteract this trend, carriers have placed considerable attention on improved line-haul scheduling that bypasses terminals, computerized billing systems, mechanized terminals, tandem operations that pull two or three trailers by a single power unit, and utilization of coordinated intermodal systems. These enhancements reduce labor intensity and, thus cost. Specialty carriers include package haulers 'such as Federal Express and United Parcel Service. These firms focus on specific requirements of a market or product. Despite the aforementioned problems, it is quite apparent that highway transportation will continue to function as the backbone of logistical operations for the foreseeable future.

Rail Network

Historically, railroads have handled the largest number of ton-miles continental. As a result of the early establishment of a comprehensive rail network connecting almost all cities and towns, railroads dominated intercity freight tonnage until after World War II. This early superiority resulted from the capability to transport large shipments economically and to offer frequent service, which gave railroads a somewhat monopolistic position. However, with the advent of serious motor carrier competition following World War II, the railroads' share of revenues and ton-miles started to decline. The capability to efficiently transport large tonnage over long distances is the main reason railroads continue to handle significant intercity tonnage and revenue.

Railroad operations incur high fixed costs because of expensive equipment (track), switching yards, and terminals. However, rail experiences relatively low variable operating costs. The replacement of steam by diesel power reduced the railroads 'variable

cost per ton-mile, and electrification offers potential for more reductions. New labor agreements have reduced workforce requirements, further decreasing variable costs.

Water Transport

Water is the oldest mode of transportation. The original sailing vessels were replaced by steamboats in the early 1800s and by diesel power in the 1920s. A distinction is generally made between deep-water and navigable inland water transport. The main advantage of water transportation is the capacity to move extremely large shipments. Water transport employs two types of vessels. Deep-water vessels, which are generally designed for ocean and Great Lakes use, are restricted to deep-water ports for access. In contrast, diesel-towed barges, which generally operate on rivers and canals, have considerably more flexibility. Water transport ranks between rail and motor carrier in respect to fixed cost. Although water carriers must develop and operate their own terminals, the right of-way is developed and maintained by the government and results in moderate fixed costs compared to rail and highway. The main disadvantages of water transport are the limited range of operation and speed. Unless the origin and destination of the movement are adjacent to a waterway, supplemental haul by rail or truck is required. The capability of water to carry large tonnage at low variable cost places this mode of transport in demand when low freight rates are desired and speed of transit is a secondary consideration.

Typical inland water freight includes mining and basic bulk commodities such as chemicals, cement, and selected agricultural products. In addition to the restrictions of navigable waterways, terminal facilities for bulk and dry cargo storage and load-unload devices limit the flexibility of water transport. Labor restrictions on loading and unloading at docks create operational problems and tend to reduce the potential range of available traffic. Finally, a highly competitive situation has developed between railroads and inland water carriers in areas where parallel routes exist.

Pipelines

It operates on a twenty-four-hour basis, seven days per week, and is limited only by commodity changeover and maintenance. Unlike other modes, there is no empty "container" or "vehicle" that must be returned. Pipelines have the highest fixed cost and lowest variable cost among transport modes. High fixed costs result from the right-of-way, construction and requirements for control stations, and pumping capacity. Since pipelines are not labor-intensive, the variable operating cost is extremely low once the pipeline has been constructed. An obvious disadvantage is that pipelines are not flexible and are limited with respect to commodities that can be transported: only products in the form of gas, liquid, or slurry can be handled.

Air Transport

The newest but least utilized mode of transport is air freight. Its significant advantage lies in the speed with which a shipment can be transported. A coast-to-coast shipment via air requires only a few hours contrasted to days with other modes of transportation. One prohibitive aspect of air transport is the high cost. However, this can be traded off for high speed, which allows other elements of logistical design, such as warehousing or inventory, to be reduced or eliminated. Air transport still remains more of a potential opportunity than a reality. Although the mileage is almost unlimited, airfreight accounts for significantly less than 1% of all intercity ton-miles. Air transport capability is limited by lift capacity (i.e., load size constraints) and aircraft availability. Traditionally, most intercity airfreight utilized scheduled passenger flights. While this practice was economical, it resulted in a reduction of both capacity and flexibility. The high cost of jet aircraft, coupled with the erratic nature of freight demand, has limited the assignment of dedicated planes to all-freight operations. The fixed cost of air transport is low compared to rail, water, and pipeline. In fact, air transport ranks second only to highway with respect to low fixed cost. Airways and airports are generally developed and maintained with public funds. Likewise, terminals are normally maintained by local communities. The fixed costs of airfreight are associated with aircraft purchase and the requirement for specialized handling systems and cargo containers. On the other hand, air freight variable cost is extremely high as a result of fuel, maintenance, and the labor intensity of both in-flight and ground crews.

Table 2.1: Transportation models and its features

Rail	Nation's largest carrier, cost-effective for shipping bulk products, piggyback
Truck	Flexible in routing and time schedules, efficient for short-hauls of high value goods
Water	Low cost for shipping bulky, low-value goods, slowest form
Pipeline	Ship petroleum, natural gas, and chemicals from sources to markets. High investments, covers long distance and fixed
Air	High cost, ideal when speed is needed or to ship high-value, low-bulk items

The following factors can be considered for the selections of international carrier. They are:

- *Transportation Cost*: This includes Rates, minimum weight, and loading and unloading charges.
- *Transit Time*: It is the total time that elapses from the time the consigner makes the goods available for dispatch until carrier delivers same to the consignee.
- *Reliability*: Refers the consistency of the transit time a carrier's provides.
- *Capability*: Refers to the carrier's ability to provide the equipment and facilities that is required for the movement of particular commodity.
- *Accessibility*: Refers to carrier's physical access or geographical limits.
- *Security*: Concern the arrival of good in the same condition.

Transportation Performance

Whether the movement of material and equipment is by rail, sea, air or road, adequate facilities for their free flow to and from the factory must be ensured. In general the following activities are performed by the transport in logistics.

Transportation Facilities

Following are the terminal facilities:

Terminal Facilities: One of the major activities of transportation is making terminal arrangement. Besides the trade growth In India terminal facilities are usually reluctantly provided. The main reason could be of lack of infrastructural facilities. Another reason for this is that any delay in the unloading of trucks or wagons, or any inconvenience caused to truck operators, is not considered to affect adversely the interests of the project and therefore are not believed to be a loss to the carrier. In some cases, this may be true. Actually, however, if these facilities are liberally provided, a reduction can be obtained in freight rates. Also, the process can be minimized, if not eliminated. Adequate reception and dispatch facilities are generally not planned for even for major projects. Sometimes, there is a conscious or subconscious antagonism against the common carrier.

Major facilities available in terminals:

- Adequate storage space
- Loading and unloading arrangements
- Storage facilities

It has not been recognized by the planners of individual projects that considerable savings can be affected by providing adequate terminal facilities because of the low quotation of rates by the transporter who can "come in" and "get out" fast from the

factory instead of waiting for hours to unload or load the goods. The overall savings in transport rates would more than justify the expenditure incurred on the provision of additional facilities.

For rail movement, not only sufficient number of loading lines, but also sufficient number of marshaling, examination and holding lines must be planned for. These lines must be suitably connected with one another to ensure smooth shunting operations. The configuration of lines (yard design) is more important than the mere number of lines in the yard, for the requirements of prime mover (shunting engines) can also be cut down by a suitable design of yard.

Fleet Management: An important feature of movement of finished products of major projects is the type of vehicle used for movement. The vehicle dimensions, capacity, type and its special characteristics, if any, have to be examined with reference to the quality and quantity of goods to be moved. In the case of sea transport, the size, speed and the type of ship to be used are very important. In the case of road transport, capacity, moving dimensions, and the speed of the trucks are of great significant. In the case of rail movement, the capacity, type and general availability of wagons must be closely examined. The capacity of vehicles and send their sectional speed together determine the throughput on a particular division. While planning movement of raw materials and finished products, it must be recognized that some sections of roads or the railways in the country have limited spare sectional capacity. With saturated sectional capacity, introduction of more vehicles tends to reduce their speed and, therefore, the total throughput. Planned movement on any section must take into account utilization of the existing sectional capacity, the expected general growth in traffic on the section, and the possible on a saturated section is inevitable, line capacity of the section must be increased.

Major carrier decisions:

- Type
- Capacity
- Characteristics
- Speed

Key Movers: The motive power utilized for the internal handling of vehicles and transportation to destinations is another important component of the total movement system. In the case of rail movement, locomotives required for shunting and marshaling of wagons within the plant must be of such weight, horsepower and performance characteristics as will match the specific tasks of shunting and reception and dispatch of wagons. In the case of road movement, suitable design and layout of conveyors and mechanical loaders can reduce the drudgery of annual labor and make pre-dispatch and post receipt handling operations more efficient.

Routing: Another important aspect of transport preparation is the routes for streams of traffic, viz., roadways, railways, waterways and airways. The goal of efficient fleet

management is to ensure on-time deliveries and pick-ups while reducing costs. Solving the vehicle routing problem is critical to efficient fleet management. In order to reduce cost and guarantee timeliness, routes must be created to reduce driving time and/or driving distance. The routes or pathways must have adequate capacities. Generally speaking, because of lack of understanding of the transportation subject, executives take it for granted that capacity of routes is unlimited.

For example, the problem of rail transport is solved fully and finally by the supply of adequate number of wagons by the railways. Again, positioning of a large number of trucks at the factory gate cannot be taken as the full and final solution of the problem of road transport just as chartering and berthing of vessels for sea transport is not the full and final solution of the problem of movement of cargo by sea. A very important but invisible component of movement activity is sectional capacity, which is dependent on permissible sectional speed and other characteristics of a section. In turn, sectional speed depends on the geometrics of the road. Over a section of railways or roadways between two stations A and B, only a limited number of wagons, trucks, or vessels can be pushed through, depending on the availability of terminal facilities to handle these vehicles, the facilities to enable these vehicles to move on the section, and availability of sufficient number of vehicles. Unless sufficient capacity is developed on each of the different routes to move the vehicles, the additional number of vehicles provided would not necessarily lead to higher levels of transport availability. On the contrary, movement may become more sluggish. Very often, restrictions are imposed by the railways on certain routes. In the case of road transport, the carrier quotes higher rates for routes which are highly congested, or poorly maintained, or of poor design.

Transit Time Management: The relative locations of a plant and the customers or suppliers determine largely the transit time of raw materials, spare parts and finished goods. Transit time generally never receives adequate attention in the planning of major projects. There is a general impression that, if need be, transit time can be drastically cut any time by air-lifting a consignment. Apart from the fact that the neglect of transportation planning on account of this erroneous assumption leads to overall higher cost of transport, in practice, reduction in transmits time actually achieved may not justify that heavy cost of air transport? Rough estimates of transit time from unreliable information sources are generally utilized by "technical experts" for planning movements of goods. Although more detailed information may be readily available with appropriate authorities, it may not be solicited from them.

Distribution Pattern: The pattern of movement of the finished product by road or rail must be planned properly.

For example, when the requirements of the number of rail wagons are not to be worked out, it is not sufficient to take the average lead or distance for the whole country for calculating fleet requirements. It is also not sufficient to use the figure of the existing average lead of general goods, or even that pertaining to a specific commodity. Generally speaking, on the basis of the information supplied by the project

management, the common carrier plans for the movement of goods to a specific destination, or region. However, when it comes to actual transport, because of imprecise preplanning, the manufacturer wants the common carrier to transport goods to anywhere and everywhere in the country. This presents a difficult problem. This manufacturer may feel that by providing information must be supplied to the carrier so that the carrier can plan the movement in entirety.

Nature of Product: Another aspect, which is often disregarded by project managements as well as the common carrier, is the variability arising out of the specialized nature of products to be moved. The generally low level of sophistication is transport planning in the country has made it difficult for planners to appreciate the fact that transport capacity is influenced by the nature of goods, their packing and other specialized requirements, such as special handling equipment, etc. It is imperative that one understand that the modern logistics structure rests on efficient transportation. Techniques such as JIT (Just in Time) and Efficient Consumer Response (ECR) would not be possible without the highly developed transportation industry.

REMEMBER

The special variability of the movement and its impact on overall transport availability must be duly recognized.

Asset Tracking: In order to serve the customer firms are in a position to update them regarding the progress in movement of goods .The technologies like GSM really provide an enormous information that allows the service providers to identify the distance covered by any shipment as well as its current location. GPS technology is used to determine exact location. Furthermore, the actual condition of the goods can be controlled.

For example, the rise in temperature in refrigerated transportation will activate an alarm within the logistics center using GSM.

Inter-state Goods Movement

For a country's economy, the transportation sector is often viewed as an important barometer of growth. As more goods are consumed within a country, the transportation sector must grow accordingly in order to accommodate the transport of additional goods. For the inter-state goods movement logistics part a prime role and can be considered as a tool for getting

resources, like products, services, and people, where they are needed and when they are desired. It is difficult to accomplish any marketing or manufacturing without logistical support. It involves the integration of information, transportation, inventory, warehousing, material handling, and packaging. These constrain the logistics system design generally to fewer choices than are domestically available and, at the same time, they force the logistician into operating the logistics system in a manner different from domestic operations for the same product. The major transport models that are used for inter-state goods movement are including Aviation, road, shipping and courier.

The logistician must contend with many peculiarities of demand, distribution, competition and government regulation that differ from one country to another.

For inter-state transactions few additional logistical obligations are to be considered which discussed follows are:

- *Documentation:* When it comes to national or international transaction, documents are prerequisite. Carrying and delivery of documents has become a part of logistical services. For any company actively involved in foreign trade, the increased documentation requirement is a commonly heard complaint. Handling the amount of documentation required for international shipments can be a burden for even companies with sophisticated logistics management.
- *Government Regulation:* The logistician who is planning or operating an international logistics systems have to deal with a vast number of legal regulations by governments that vary from democracies to dictatorships. These regulations can affect all aspects of distribution, ranging from packaging, marketing and documentation to the location of warehousing and manufacturing facilities. The latter are more generally affected because governments seek to satisfy their own interests in such areas as employment, industrial growth, uses of raw materials, and the acquisition of wealth.
- *Regional Differences:* In inter-state goods movement finding regional differences is a common factor pervasive factor. Heavy tariffs, duties and taxes that governments place on imported goods often prove a hurdle to the trader. Regional differences, special zones and free ports, eliminate this disadvantage for

the benefit of both the exporting and the importing country. There can be numerous advantages to the logistician responsible for international goods movement. Duties, quotas, and other restrictions and costs placed on the exporter or importer by governments are real concerns to the logistician. However the trade zone is a key link in the logistical channel for minimizing movement cost and for providing potential customers with service levels that are competitive with domestic products. Not only that , the trade zone is a forward base of production and storage that can reduce the impact of long lead times and help to match the costs of production, distribution and foreign sales more closely with the revenues from these sales.

- *Transportation:* Managing transportation for inter-state goods movement that results from growing international trade creates new problems for the logistician. International shipments often originate in the interior of one country and have a destination in the interior of another. The logistician may have to deal with various transporters and several freight classifications and tariff schedules. The liability of a carrier in international movement is quite different from that of domestic carriers. In fact it is much less for the international carriers.

Transportation Modes

Transportation modes are defined below:

A Diversity of Modes

Transport modes are the means by which people and freight achieve mobility. They fall into one of three basic types, depending on over what surface they travel – land (road, rail and pipelines), water (shipping), and air. Each mode is characterized by a set of technical, operational and commercial characteristics:

- *Road Transportation*: Road infrastructures are large consumers of space with the lowest level of physical constraints among transportation modes. However, physiographical constraints are significant in road construction with substantial additional costs to overcome features such as rivers or rugged terrain. Road transportation has an average operational flexibility as vehicles can serve several purposes but are rarely able to move outside roads. Road transport systems have high maintenance costs, both for the vehicles and infrastructures. They are mainly linked to light industries where rapid movements of freight in small batches are the norm. Yet, with containerization, road transportation has become a crucial link in freight distribution.
- *Rail Transportation:* Railways are composed of a traced path on which is a bound vehicle. They have an average level of physical constrains linked to the types of locomotives and a low gradient is required, particularly for freight.

Heavy industries are traditionally linked with rail transport systems, although containerization has improved the flexibility of rail transportation by linking it with road and maritime modes. Rail is by far the land transportation mode offering the highest capacity with a 23,000 tons fully loaded coal unit train being the heaviest load ever carried.

- *Pipelines*: Pipeline routes are practically unlimited as they can be laid on land or under water. The longest gas pipeline links Alberta to Sarnia (Canada), which is 2,911 km in length. The longest oil pipeline is the Transiberian, extending over 9,344 km from the Russian arctic oilfields in eastern Siberia to Western Europe. Physical constraints are low and include the landscape and pergelisol in arctic or subarctic environments. Pipeline construction costs vary according to the diameter and increase proportionally with the distance and with the viscosity of fluids (from gas, low viscosity, to oil, high viscosity).
- *Maritime Transportation*: Because of the physical properties of water conferring buoyancy and limited friction, maritime transportation is the most effective mode to move large quantities of cargo over long distances. Main maritime routes are composed of oceans, coasts, seas, lakes, rivers and channels. However, due to the location of economic activities maritime circulation takes place on specific parts of the maritime space, particularly over the North Atlantic and the North Pacific. The construction of channels locks and dredging are attempts to facilitate maritime circulation by reducing discontinuity. Maritime transportation has high terminal costs, since port infrastructures are among the most expensive to build, maintain and improve. High **inventory costs** also characterize maritime transportation. More than any other mode, maritime transportation is linked to heavy industries, such as steel and petrochemical facilities adjacent to port sites.
- *Air Transportation*: Air routes are practically unlimited, but they are denser over the North Atlantic, inside North America and Europe and over the North Pacific. Air transport constraints are multidimensional and include the site, the climate, fog and aerial currents. Air activities are linked to the tertiary and quaternary sectors, notably finance and tourism, which lean on the long distance mobility of people. More recently, air transportation has been accommodating growing quantities of high value freight and is playing a growing role in global logistics.
- *Intermodal Transportation:* Concerns a variety of modes used in combination so that the respective advantages of each mode are better exploited. Although intermodal transportation applies for passenger movements, such as the usage of the different, but interconnected modes of a public transit system, it is over freight transportation that the most significant impacts have been observed. Containerization has been a powerful vector of intermodal integration, enabling maritime and land transportation modes to more effectively interconnect.

- *Telecommunications:* Cover a grey area in terms of if they can be considered as a transport mode since unlike true transportation, telecommunications often does not have physicality. Yet, they are structured as networks with a practically unlimited capacity with very low constraints, which may include the physiographic and oceanic masses that may impair the setting of cables. They provide for the instantaneous movement of information (speed of light in theory). Wave transmissions, because of their limited coverage, often require substations, such as for cellular phone networks. Satellites are often using a geostationary orbit which is getting crowded. High network costs and low distribution costs characterize many telecommunication networks, which are linked to the tertiary and quaternary sectors (stock markets, business to business information networks, etc.). Telecommunications can provide a substitution for personal movements in some economic sectors.

Modal Competition

A general analysis of transport modes reveals that each has key operational and commercial advantages and properties. However, contemporary demand is influenced by integrated transportation systems that require maximum flexibility. As a result, modal competition exists at various degrees and takes several dimensions. Modes can compete or complement one another in terms of cost, speed, accessibility, frequency, safety, comfort, etc.

There are three main conditions that insure that some modes are complementing one another:

- *Different Geographical Markets:* It is clear that if different markets are involved, modes will permit a continuity within the transport system, particularly if different scales are concerned, such as between national and international transportation. This requires an interconnection, commonly known as a gateway, where it is possible to transfer from one mode to the other. Intermodal transportation has been particularly relevant to improve the complementarily of different geographical markets.
- *Different Transport Markets:* The nature of what is being transported, such as passengers or freight, often indicates a level of complementarily. Even if the same market area is serviced, it may not be equally accessible depending of the mode used. Thus, in some markets rail and road transportation can be complementary as one may be focusing on passengers and the other on freight.
- *Different Levels of Service:* For a similar market and accessibility, two modes that offer a different level of service will tend to complement another. The most prevailing complementarily concerns costs versus time.

Thus, there is modal competition when there is an overlap in geography, transport and level of service. Cost is one of the most important considerations in the choice of

mode. Because each mode has its own price/performance profile, the actual competition between the modes depends primarily upon the distance travelled, the quantities that have to be shipped and the value of the goods. While maritime transport might offer the lowest variable costs, over short distances and for small bundles of goods, road transport tends to be most competitive. A critical factor is the terminal cost structure for each mode, where the costs (and delays) of loading and unloading the unit impose fixed costs that are incurred independent of the distance travelled. With increasing levels of income the propensity for people to travel rises. At the same time, international trade in manufactured goods and parts has increased. These trends in travel demand act differentially upon the modes. The modes that offer the faster and more reliable services gain over modes that might offer a lower cost, but slower, alternative. For passenger services, rail has difficulty in meeting the competition of road transport over short distances and aircraft for longer trips. For freight, rail and shipping have suffered from competition from road and air modes for high value shipments. While shipping, pipelines and rail still perform well for bulkier shipments, intense competition over the last thirty years has seen road and air modes capture an important market share of the high revenue-generating goods. Road transport clearly dominates. Although intermodal transportation has opened many opportunities for complementarily between modes, there is intense competition as companies are now competing over many modes in the transport chain. A growing paradigm thus appears to be supply chain competition with the modal competition component occurring over three dimensions:

- *Modal Usage:* Competition that involves the comparative advantage of using a specific or a combination of modes. Distance remains one of the basic determinants of modal usage for passenger's transportation. However, for a similar distance, costs, speed and comfort can be significant factors behind the choice of a mode.
- *Infrastructure Usage:* Competition resulting from the presence of freight and passenger traffic on the same itineraries linking the same nodes.
- *Market Area:* Competition being experienced between transport terminals for using new space (terminal relocation or expansion) or capturing new markets (hinterland).

It is generally advocated that a form of modal equality (or modal neutrality) should be part of public policy where each mode would compete based upon its inherent characteristics. Since different transport modes are under different jurisdiction and funding mechanisms, modal equality is conceptually impossible as some modes will always be more advantageous than others. Modal competition is influenced by public policy where one mode could be advantaged over the others. This particularly takes place over government funding of infrastructure and regulation issues. For these reasons, transport provision is seen as a major factor in economic development. Areas with limited modal choices tend to be among the least developed. The developed world, on the other hand possesses a wide range of modes that can provide services to

meet the needs of society and the economy. Since 2000 the price of fuel has increased significantly as well as its volatility. All modes are affected, from the individual car owner to the corporation operating a fleet of hundreds of aircraft or ships. The higher costs are being passed on to the customer, either directly, as is the case of shipping where freight rates are climbing, or indirectly as is the case of airlines, where passengers are being charged additional fuel surcharges. These cost increases are likely to have significant impacts on mobility and trade, as well as on the modal split:

- Higher transport costs increase the friction of distance and constrain mobility. As a major consumer of petroleum the transport industry has to increase rates. Across the board increases causes people to rethink their patterns of movement and companies to adjust their supply and distribution chains. One of the expected effects of these cost increases is a decline in freight shipments and passenger carriers, such as airlines are anticipating a reduction in trips.
- Because the impact of higher fuel costs hits the modes differentially, a modal shift is anticipated. Road and air transport are more fuel intensive than the other modes, and so fuel price increases are likely to impact upon them more severely than other modes. This could lead to a shift towards water and rail transport in particular.
- A further impact of fuel price increases is greater fuel economy across the modes. One of the best ways for all modes to reduce consumption is to lower speeds. A future of high energy prices is likely to have a major impact on just-in-time deliveries, and lead to a restructuring of supply chains.

Passengers or Freight?

With some exceptions, such as busses and pipelines, most transport modes have developed to handle both freight and passenger traffic. In some cases both are carried in the same vehicle, as *for example* in the airlines where about 80% of the freight is transported in the cargo holds of passenger aircraft. In others, different types of vehicle have been developed for freight and passenger traffic, but they both share the same road bed, as *for example* in rail and road traffic. In shipping, passengers and freight used to share the same vessel, but since the 1950s specialization has occurred, and the two are now quite distinct, except for ferries and some RORO services. The sharing by freight and passengers of a mode is not without difficulties, and indeed some of the major problems confronting transportation occur where the two seek to co-inhabit.

For example, trucks in urban areas are seen as a nuisance and a cause of congestion by passenger transport users. Daytime deliveries and double-parked trucks are a particular nuisance. The poor performance of some modes, such as rail, is seen as the outcome of freight and passengers having to share routes. There are also growing interests expressed at using segments of transit systems to move freight, particularly

in central areas. This raises the question as to whether freight and passengers are compatible.

The main advantages of joint operations are:

- High capital costs can be justified and amortized more easily with a diverse revenue stream.
- The same modes or traction sources can be used for both freight and passengers, particularly for rail.

The main disadvantages of joint operations are:

- Locations of demand rarely match: The origins and destinations of freight are usually quite distinct spatially from passenger traffic.
- Frequency of demand is different: For passengers the need is for high frequency service, for freight it tends to be somewhat less critical.
- Timing of service: Demand for passenger services has specific peaks during the day, for freight it tends to be more evenly spread throughout the day.
- Traffic balance: On a daily basis passenger flows tend to be in equilibrium, for freight, market imbalances produce empty flows.
- Reliability: Although freight traffic increasingly demands quality service, for passengers delays are unacceptable.
- Sharing routes favors passenger traffic: Passenger trains are given priority; trucks may be excluded from areas at certain times of the day.
- Different operational speeds: Passengers demand faster service.
- Security screening measures for passengers and freight require totally different procedures.

The separation of passengers and freight on specific gateways and corridors is consequently a likely outcome. A growing divergence passengers and freight are increasingly divergent activities as they reflect different transportation markets.

ROLE MODEL

FADI GHANDOUR: ARAMEX LION WILL KEEP ON RUNNING

Fadi Ghandour is the founder and vice chairman of Aramex. Aramex, one of the leading logistics & transportation companies in the Middle East and South Asia, was the first company from the Arab world to go public on the Nasdaq stock exchange. After five years of successful trading on it, Aramex returned to private ownership and, in June 2005, went public again on the Dubai Financial Market (DFM).

He is currently executive chairman of Wamda Capital, a new venture capital fund focusing on technology investments in the Arab World.

Ghandour is also the managing partner of MENA Venture Investments, a seed capital investment company investing in early-stage tech companies. He is a member of the board of Abraaj Capital, a member of the board of trustees at the American University of Beirut, and chairman of the advisory council of the Center for Entrepreneurial Development (CED) at the Institute of Business Administration Karachi (IBA).

He is passionate about social entrepreneurship, he is the founder and chairman of Ruwwad for Development, a regional private sector-led community empowerment initiative that helps disadvantaged communities overcome marginalization through youth activism, civic engagement, education, and financial inclusion through the Ruwwad Micro Venture Fund, an equity-based fund that provides seed capital for microbusinesses and micro-entrepreneurs.

Ghandour is a Founding Partner in Maktoob.com, the world's largest Arab On-Line community, is a member of the Board of Abraaj Capital, and serves on the Advisory Board of the Suliman S. Olayan School of Business at the American University of Beirut. Between 2003 and 2005, he was the Middle East and North Africa Area Chairman of the Young Presidents Organization (YPO).

In the midst of the worst global recession in recent history, it is rare to find a corporate hotshot talking up the importance of staff sustainability. Battered by the crisis, most firms are living hand-to-mouth. As a result, the mollycoddling of employees has taken a back-seat to more pressing issues, such as making ends meet. For aspiring entrepreneurs, Ghandour says patience is as important as determination. "You need to remain patient and you need to be impatient at the same time. It's a paradox," says Ghandour.

Ghandour is actively involved with community and NGO work. He is Vice Chairman of the Board of Trustees of the Jordan River Foundation, Chairman of "National Microfinance Bank" in Jordan, and founder of Ruwwad Development, a region-wide corporate social responsibility initiative.

What Is The Moral Here?

It is rare to find a corporate hotshot talking up the importance of staff sustainability. For aspiring entrepreneurs, he said that patience is as important as determination.

SUMMARY

- Successful supply chain management requires cross-functional integration of key business processes within the firm and across the network of firms that comprise the supply chain.
- The plan process seeks to create effective long and short range supply chain strategies. From the design of the supply chain network to the prediction of customer demand, supply chain leaders need to develop integrated supply chain strategies.
- Manufacturers face escalating supply chain challenges. They have decentralized their operations and shifted production to different cities, states and even countries in an effort to reduce costs.
- Supply Chain Planning helps manufacturers increase responsiveness by shifting the planning process closer to actual demand.
- Supply Chain Planning provides visibility into demand and also allows manufacturers to determine the optimal way to fulfill that demand based on available enterprise-wide supply and production resources.
- Procurement is the business management function that ensures identification, sourcing, access and management of the external resources that an organization needs or may need to fulfill its strategic objectives.
- A procurement service is an independent firm that specializes in providing dedicated procurement support to organizations, large and small.
- Workflow can be a means of implementing value chains that operate across and between organizations.
- Demand planning is a multi-step operational supply chain management (SCM) process used to create reliable forecasts.
- Customer support is another term for customer service. It involves methods that create a positive experience for a customer.
- Transportation is one of the most visible elements of logistics operations. The role of transport in national economy is very crucial.

KNOWLEDGE CHECK

1. Today, SCM systems focus on extending beyond an organization's four walls to influence:

a. Suppliers

b. Suppliers' supplier

c. Customers' customer

d. All of the above

2. **Which of the following is not one of the three main links in the supply chain?**
   a. Materials flow from suppliers and their "downstream" suppliers at all levels
   b. Transformation of materials into semi-finished and finished products the organizations own production processes
   c. Distribution of products to customers and their "downstream" customers at all levels
   d. None of the above
3. **Which of the following is the top reason why executives are using SCM to manage extended enterprises?**
   a. Inventory reductions/improvements
   b. .Productivity improvements
   c. Cost control/savings
   d. Improved visibility into demand/supply
4. **All of the following are factors driving supply chain management, except:**
   a. Visibility
   b. Speed
   c. Customers
   d. Competition
5. **Which of the following is the first principle of supply chain management?**
   a. Customize the logistics network and focus intensively on the service requirements
   b. Listen to signals of market demand and plan accordingly
   c. Segment customers by service needs and then tailor services to those particular segments
   d. None of the above

REVIEW QUESTIONS

1. What do you understand by planning? Explain support for global PSI planning
2. Describe the procurement in SCM and explain its process.
3. Explain the comprehensive managed procurement services.
4. Write the short note on "Customer Interface".
5. What is transportation? Explain its role.

CHECK YOUR RESULT

1. (d) 2. (a) 3. (c) 4. (c) 5. (c)

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CHAPTER

3

INVENTORY MANAGEMENT

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

1. Describe the perception of inventory
2. Explain the inventory costs
3. Understand by ABC analysis

INTRODUCTION

In general, inventory management refers to the method by which businesses handle tangible resources and materials in order to make sure resources are readily available for use. Inventories are generally managed using a paper list system or a computer software-enabled system. By using an inventory management system, a household can expect to keep necessary supplies on hand while a business can use resources more efficiently in order to generate revenues.

The simplest form of inventory management is the hard-copy method whereby a list is kept of materials that are used on a regular basis. When items are brought in,

they are added to the list. When supplies run low, a purchase is made to replenish materials. In this manner, a running inventory of the most important materials can be provided at any time. This simple form of inventory management is helpful so that materials can be purchased at opportune times when prices are low and nothing critical ever runs out.

Another popular form of inventory administration is the computer-software-based inventory management system. As supplies accumulate, a computer inventory management system can be used to keep track of large amounts of products and materials. Whenever an individual material is brought in or leaves the inventory, the inventory-management software makes adjustments to correspond with these activities.

The most important reason that inventory systems are used is to track supplies so that inventory problems can be identified quickly. If materials are in high demand, an inventory system will allow an organization to be strategic about handling materials, making planned purchases to keep supplies on hand, and reducing the waste of materials. In addition, many organizations are required to keep a running inventory list of goods for tax and insurance purposes. Having an inventory management system that works well depends on size of the organization and the type of materials that are to be tracked. While a simple inventory method can work well for a small business; for large organizations with a large number of supplies, parts or materials on hand, a computer inventory system may be required to keep up with demand. Without a clear system for keeping inventory levels stable, problems can arise which can be costly and inconvenient.

3.1 PERCEPTION OF INVENTORY

Inventory refers to the total number of items, goods or materials that a company has in stock. Various types of companies keep inventory. These include restaurants, retail stores and manufacturing companies. The type of inventory a company keeps varies and depends primarily on the nature of its business.

A restaurant's inventory will include food items and food supplies. A retail store's inventory might consist of shoes, clothing and accessories.

Inventory is a stock of goods or other items owned by a firm and held for sale or for processing before being sold, as part of a firm's ordinary operations. Inventory management is part of supply chain management (SCM). Therefore first SCM will be described shortly. This is done to show how inventory management relates to this much broader field of research.

The different aspects of inventory management are described. The enterprise resource planning (ERP) packages support a wide range of business activities: The SCM and inventory management are two of them. The ERP and logistics are related to each other in a way that ERP supports these processes with information; in many terms IT systems even form the core of the logistic processes.

Inventory Management

'Inventory' and 'stock' are often used to relate to the same thing; yet when inventory management is mentioned, there is however a slight difference with stock. Stock is usually an amount of goods that is being kept at a specific place, sometimes referred to as inventory. Conversely, inventory management is primarily about specifying the size and placement of stocked goods.

KEYWORD

Inventory Management involves a retailer seeking to acquire and maintain a proper merchandise assortment while ordering, shipping, handling, and related costs are kept in check.

Inventory management is necessary at different locations within an organization or within multiple locations of a supply chain, to protect from running out of materials or goods. The scope of inventory management is broader than stock. Basically inventory management can be defined as the "management of materials in motion and at rest". These activities all fall within the range of **inventory management** control of lead times, carrying costs of inventory, asset management, inventory forecasting, inventory valuation, inventory visibility, future inventory price forecasting, physical inventory, available physical space for inventory, quality management, replenishment, returns and defective goods and demand forecasting. Inventory management basically serves two main goals. First of all good inventory management is responsible for the availability of goods. It is important for running operations that the required materials are present in the right quantities, quality and at the right time in order to deliver a specific level of service. The second goal is to achieve this service level against optimal costs. Not all items can be held in stock against every cost *for example* and therefore choices have to be made.

Inventory Strategies

Stocks take up valuable working capital, cost money to maintain and form a source of risks. On the other hand it is often inevitable to do without stocks. Stocks can even bring in additional money due to economies of scale. Thus in the

end stocks will most probably never cease to exist. The important question that still remains is; what is the optimal amount of stock to maintain? Unfortunately there is no unambiguous answer to this question and it has to be considered for each separate situation individually. The amount of inventory that should be kept depends on various factors and upon the activity that is defining the stock.

Different Views on Inventory

Different perspectives on inventory management also cause the ideal stock levels to be ambiguous. From a sales perspective high service levels are important. The sales department wants to offer their clients the best service. Running out of stock is thus not desirable, and therefore seen from this perspective, high safety stocks seem a perfect solution and not a problem. The management on the other hand needs to satisfy several different objectives: where customer service is being just one of them. Management often wants to reduce costs as much as possible in order to generate more profit or be more competitive. Maintaining large inventories costs money and consumes working capital that can also be applied for other means. Additionally an inventory manager also has another perspective on the matter.

The inventory manager responsible for purchasing raw materials might for instance be evaluated by his superiors on the prices he pays for purchased goods. In that buying large quantity is more beneficial, but additional stock might be the result. From his own perspective he might judge that the purchases are done perfectly, but the stock levels might become too high and in the end cost more money.

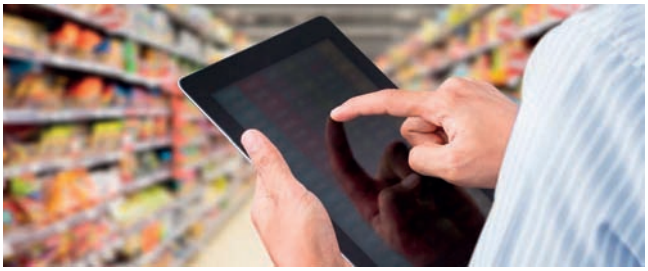
3.1.1 Types of Inventory

Inventory only exist because there is a difference in the timing or rate of supply and demand. *For example*, if anyone had a product that that was immediately demanded when they received it, there would be no need to store it, therefore no inventory. As such, when the rate of supply exceeds the rate of demand, inventory increases; when the rate of demand exceeds the rate of supply, inventory decreases. To better understand inventory need to look at different types of inventories and their purposes, as their quantities are computed differently. Together they collectively add up to inventory costs for the organization. However, there are various reasons for an imbalance between the rates of supply and demand at different points in any operation lead to the five different types of inventory:

- Seasonal
- Decoupling
- Cyclic
- Pipeline
- Safety

Seasonal

These inventories are carried to compensate for differences in the timing of supply and demand, and to smooth out the flow of products throughout the supply chain. They are called seasonal inventories as they are often used when demand fluctuations are significant, but predictable, such as with seasonal variation. This is where companies carry extra inventory during a low season in anticipation of higher demands during the high season. Finally, these are inventories that are carried in anticipation of a price increase or a shortage or products. For this reason they are sometimes called hedge inventory. Inventory built up in anticipation of a seasonal peak of demand in order to smooth production.



While some products maintain stable and consistent demand year-round, others are more seasonally driven. In these product categories, companies have to strategize on how to effectively buy and manage seasonal inventory. This is the build-up of higher than normal levels of certain products to meet temporary seasonal demand.

KEYWORD

Voltage drop is defined as the amount of voltage loss that occurs through all or part of a circuit due to impedance.

Holidays

The holidays are a big driver of seasonal inventory. Supermarkets typically stock up on turkeys and stuffing the weeks leading up to Easter, Thanksgiving and Christmas holidays, all of which lead to high prominence of turkey dinners. Similarly, many retailers set up special seasonal aisles before Halloween that are full of costumes, accessories, and significantly more candy than is normally maintained in stores.

Fashion

The fashion and apparel industry is very seasonally driven. Fashion buyers and retailers carefully strategize when to merchandise new fashions in stores to take advantage of peak seasonal demand. Usually buyers are at trade shows looking at new apparel and styles two to three seasons ahead of when clothes arrive in stores. A few weeks ahead of the winter season, retailers usually put out seasonal inventory on coats, hats, scarves, gloves and boots.

Recreation

Leisure and recreation activities vary by season. In mid-to-late spring, retailers build up inventory levels on swim wear, suntan lotion, baseball gear, golf equipment, bikes, coolers, beach tents and sandals. In mid-to-late fall, snow gear, snowmobiles,

snow blowers, sleds, shovels and sandbags appear in higher levels. Often, these types of products go on sale if companies overbuy or if customer demand is low during the peak season.

Decoupling

Decoupling inventory involves separating inventory within a manufacturing process. This is done so that the inventory associated with one part of a manufacturing process does not slow down the other part of the process one portion of a process is not contingent upon the other. The "Production and Operations Management" provides a fictitious example of an automobile company. The automobile company decouples its inventory so engine assembly, seat assembly and final assembly are separate from one another. This way, if there is any problem or shortage in seat inventory, the final assembly can continue on without any hiccup.

If inventories are positioned between process stages, those inventories decouple the flow of materials being received at a work station from an up-stream process. This allows the two process stages to be scheduled somewhat independently of one another. This decoupling process allows for more effective and efficient scheduling of each process stage. While the ideal plant would like to achieve a continuous flow of material through the entire process train, this synchronization is often difficult to achieve. Where synchronization is not possible, it becomes advisable to decouple process stages.

DID YOU KNOW?

The use of inventory proportionality in the United States is thought to have been inspired by Japanese just-in-time parts inventory management made famous by Toyota Motors in the 1980s.

Manufacturing systems typically involve a series of production and assembly workstations. Raw material passes through these stages before it is converted into finished goods. Each stage behaves idiosyncratically on account of varying process times, downtimes, and resource availability. Therefore, the planning and control of such multi-stage production processes becomes very complex. One way to simplify the production planning and control problem is to decouple successive stages using inventory at some intermediate points. Each stage will have an input buffer and an output buffer. The output buffer of the preceding stage becomes the input buffer of the succeeding stage. Inventory decisions in this use require analysis of workstation capacities, resource availability. Planning and control is challenging, especially when the number of stations is very large. On the other hand, the second use in decomposed the production into three major stages. Each stage is linked to the other using decoupling inventory. This enables each stage to work with reasonable levels of independence. Further, the adverse impact of one stage will not immediately affect the others. Therefore, a certain amount of decentralized planning and control is possible.

Very rarely, if ever, a production facility where every machine in the process produces at exactly the same rate. In fact, one machine may process parts several times faster than the machines in front of or behind it. Yet, if one walks through the plant it may seem that all machines are running smoothly at the same time. It also could be possible that while passing through the plant, one notices several machines are under repair or are undergoing some form of preventive maintenance. Even so, this does not seem to interrupt the flow of work-in-process through the system. The reason for this is the existence of an inventory of parts between machines, a decoupling inventory that serves as a shock absorber, cushioning the system against production irregularities. As such it "decouples" or disengages the plant's dependence upon the sequential requirements of the system (i.e., one machine feeds parts to the next machine). The more inventory a firm carries as a decoupling inventory between the various stages in its manufacturing system (or even distribution system), the less coordination is needed to keep the system running smoothly. Naturally, logic would dictate that an infinite amount of decoupling inventory would not keep the system running in peak form. A balance can be

The cost of efficiency must be weighed against the cost of carrying excess inventory so that there is an optimum balance between inventory level and coordination within the system.

reached that will allow the plant to run relatively smoothly without maintaining an absurd level of inventory.

Cyclic

A method of keeping track of inventory by performing inventory counts constantly, or on a frequent and regular basis, instead of once per year or once per quarter. A business using the **cycle inventory** method might count different items at different rates, based on the level of turnover or demand for that particular item.

This category of inventory is computed for immediate use and is also called lot size inventory. It is computed based on expected demand over a certain time period and assumes demand is known. This simply computes how much stock is needed to cover demand over a set period of time. It also accounts for the fact that products are typically produced in batches. This is the quantity, or the size, of the batch that is produced during the production cycle. Therefore it is called cycle stock.

KEYWORD

Cycle Inventory is a method of keeping track of inventory by performing inventory counts constantly, or on a frequent and regular basis, instead of once per year or once per quarter.

Those who are familiar with the economic order quantity (EOQ) know that the EOQ is an attempt to balance inventory holding or carrying costs with the costs incurred from ordering

or setting up machinery. When large quantities are ordered or produced, inventory holding costs are increased, but ordering/setup costs decrease. Conversely, when lot sizes decrease, inventory holding/carrying costs decrease, but the cost of ordering/setup increases since more orders/setups are required to meet demand. When the two costs are equal (holding/carrying costs and ordering/setup costs) the total cost is minimized. Cycle inventories, sometimes called lot-size inventories, result from this process. Usually, excess material is ordered and, consequently, held in inventory in an effort to reach this minimization point. Hence, cycle inventory results from ordering in batches or lot sizes rather than ordering material strictly as needed.

Cycle stock inventory is the portion of an inventory that the seller cycles through to satisfy regular sales orders. It is part of on-hand inventory, which includes all of the items that a seller has in its possession.

For example, a retailer's on-hand inventory would include the items on store shelves as well as most of those in a store room or stock area. Over time, cycle stock inventory refreshes itself, or turns over, as new items replace older ones that are sold. Companies that are in the business of selling goods, whether they resell them as retailers or produce them, need to find ways to manage their inventory levels. The process of inventory management subdivides inventory into a number of categories. Cycle stock inventory is among the most important parts of an overall inventory since it is the first place customer purchases will come from.

Calculating Quantity

The quantity of a cycle stock inventory is equal to the total on-hand inventory minus the safety stock inventory. A safety stock is intended to cover variations in demand, while the cycle stock inventory covers the majority or purchases. Computing an appropriate safety stock is much more complex as it involves variables such as changes in demand, the length of time it takes to receive new inventory after placing an order and the desired inventory fill rate. In a small business that does not have safety stock, cycle stock inventory is the same as the quantity of on-hand inventory, which does not include inventory that has been paid for but has not yet arrived.

Accounting

Cycle stock inventory serves an important function in a company's accounting. As a business sells its cycle stock inventory and replenishes it, its cash flow accounts for the income it receives and the payments it makes. Cycle stock inventory is also part of a company's total assets on its balance sheet. To determine the cost of cycle stock inventory, a business can use the last-in, first-out method or the first-in, first-out method, which base the price of items in the cycle stock on the most recent or oldest prices paid, respectively.

Implications for Business

Cycle stock inventory represents the portion of inventory that a business can sell and replenish to plan, without dipping into its safety stock. Time of sustained high demand calls for increases to the cycle stock to prevent stock outs, which occur when there is not enough cycle stock or safety stock to meet customer' demand. Stock outs are costly as they represent lost sales and a failure of inventory management. Keeping cycle stock as low as possible saves money on shipping and storage costs, which is another key role of inventory management in a business.

The Importance of Cycle Inventory

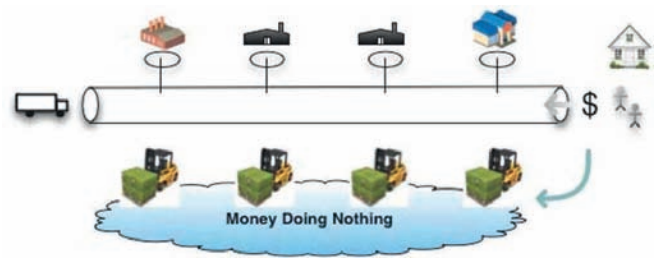
Cycle inventory counting is an inventory management approach where part of an inventory is counted each day. A counting schedule is developed, and specified areas of inventory are checked to the schedule. Cycle counting is an important inventory management approach that provides many benefits.

- *Accuracy and Pilferage Reduction*: Cycle counting, involving inventory assessment with an automated system, keeps accurate data with less chance of error because fewer items are inventoried at one time. Fewer items will be stolen from inventory if employees understand that inventory levels are accurately updated on a frequent basis. In addition, management will be alerted more quickly of other problems with inventory levels.
- *Productivity and Improved Expediting*: Warehouse workers will be more productive with cycle counting because the location of items in inventory will be more accurate. Less time will be spent trying to locate items that are no longer in inventory or have been moved to another location. When inventories are inaccurate, it may be difficult to expedite customer rush requests. In addition, if finding items takes more time, then to compensate for the additional time, higher expedited shipping costs may be incurred.
- *Reduced Management Time:* A more accurate inventory reduces the amount of time management exceptions that occur. *For example*, if a customer order cannot be fulfilled because of an assumed wrong inventory level, the customer has to be contacted and management must seek other methods to satisfy the customer's needs.
- *Less Safety Stock:* A more accurate inventory reduces the number of stock outs and allows for a lower level of safety stock. Safety stock is an added level of inventory maintained to prevent not having enough inventories on hand.
- *Program Implementation:* To implement a cycle counting program, management should announce the program to impacted employees, read how the program works and assign someone responsibility for managing the implementation. In addition, one or more individuals should be designated to maintain the

program that was originally set up. First, a complete physical inventory must be taken. Inventory is then divided into smaller part and a schedule is developed covering on what day each part will be inventoried. When an inventory is taken of a part, access to that part must be blocked until the inventory is complete. Other departments, such as customer service, must be informed of the schedule when inventory access is not available. Upon completion of inventorying one part, computerized inventory records must be updated.

Pipeline

This is inventory that is in transit and exists merely because the points of demand and supply are not same. At any one time a global supply network has a large percentage of its inventory in transit on a barge, truck, or rail being moved from one location to another, or waiting to be loaded or unloaded.



Inventory goes through many different locations prior to becoming an end product for purchase by a consumer. Products may come from many different countries one part of a product may come from China and another part of the same product may come from India, for instance. Inventory that is en route from one location to another is called pipeline inventory because it is in the pipeline on its way to its next stop. It could be on its way from a large distributor to a factory where it is going to be turned into the end product, or it may be on its way from a factory to a local retailer

Similarities between Pipeline and Decoupling

Both pipeline inventory and decoupling inventory are used in efforts to promote efficiency. It takes time to move inventory from point A to point B to point C. using the ideals associated with pipeline inventory; businesses can calculate measures such as time periods and respective cost. Decoupling inventory promotes efficiency by allowing production to continue on, even given an inventory issue. Additionally, both pipeline inventory and decoupling inventory are efforts to improve organization by considering the impact. Pipeline inventory accounts for inventory during intermediary stages, and decoupling inventory breaks down and evaluates each manufacturing stage.

Safety

This is inventory carried to serve as a cushion for uncertainties in supply and demand. It can be in the form of finished goods to cover unexpected demand, raw materials to guard against supply problems, or work-in-process inventories to guard against production stoppages.

Methods of Calculating Safety Stock

Different companies have different methods to arrive at the safety stock number. These methods can be broadly classified under three umbrellas:

- Fixed safety stock
- Time-based calculation
- Statistical calculation
- *Fixed Safety Stock:* Companies can set a fixed level of safety stock for their goods. This number may be based on judgment or calculations. This method may lead to high inventory costs or stock-outs since demand is not always constant.
- *Time-based Calculation:* Time-based safety stock level is used to calculate the stock required over a fixed period. In addition to the cycle stock (expected demand during lead time) usually a percentage or a day's average sales (or a week's average sales) is added. *For example*, if the lead time is two weeks a company may carry three or four weeks of safety stock. This method also has a drawback, particularly when items are slow moving: It can result in a large amount of capital tied up in safety stock.
- *Statistical Calculation*: The statistical method of calculation uses the normal curve or bell curve. It assumes that the error between the forecasted demand and the actual demand follows a normal probability distribution. A normal distribution is characterized by two parameters—mean and variance. Since

there is an equal likelihood that predicted demand is greater or less than actual demand, the mean of the error distribution is assumed to be zero. In the language of statistics, it is equivalent to saying that there is no bias in forecasting demand

3.1.2 Need for Inventory

Inventory is a necessary evil that every organization would have to maintain for various purposes. Optimum inventory management is the goal of every inventory planner. Over inventory or under inventory both cause financial impact and health of the business as well as effect business opportunities.

Inventory holding is resorted to by organizations as hedge against various external and internal factors, as precaution, as opportunity, as a need and for speculative purposes. Most of the organizations have raw material inventory warehouses attached to the production facilities where raw materials, consumables and packing materials are stored and issue for production on JIT basis. The reasons for holding inventories can vary from case to case basis.

Meet Variation in Production Demand

Production plan, changes in response to the sales, estimates, orders and stocking patterns. Accordingly the demand for raw material supply for production varies with the product plan in terms of specific stock keeping unit (SKU) as well as batch quantities. Holding inventories at a nearby warehouse helps issue the required quantity and item to production just in time.

Cater to Cyclical and Seasonal Demand

Market demand and supplies are seasonal depending upon various factors like seasons; festivals etc. and past sales data help companies to anticipate a huge surge of demand in the market well in advance. Accordingly they stock up raw materials and hold inventories to be able to increase production and rush supplies to the market to meet the increased demand.

Economies of Scale in Procurement

Buying raw materials in larger lot and holding inventory is found to be cheaper for the company than buying frequent small lots. In such cases one buys in bulk and holds inventories at the plant warehouse.

Take Advantage of Price Increase and Quantity Discounts

If there is a price increase expected few months down the line due to changes in demand and supply in the national or international market, impact of taxes and budgets etc., the company's tend to buy raw materials in advance and hold stocks as a hedge against increased costs.

Companies resort to buying in bulk and holding raw material inventories to take advantage of the quantity discounts offered by the supplier. In such cases the savings on account of the discount enjoyed would be substantially higher that of inventory carrying cost.

Reduce Transit Cost and Transit Times

In case of raw materials being imported from a foreign country or from a faraway vendor within the country, one can save a lot in terms of transportation cost buy buying in bulk and transporting as a container load or a full truck load. Part shipments can be costlier.

In terms of transit time too, transit time for full container shipment or a full truck load is direct and faster unlike part shipment load where the freight forwarder waits for other loads to fill the container which can take several weeks.

There could be a lot of factors resulting in shipping delays and transportation too, which can hamper the supply chain forcing companies to hold safety stock of raw material inventories.

Long Lead and High demand items need to be held in Inventory

Often raw material supplies from vendors have long lead running into several months. Coupled with this if the particular item is in high demand and short supply one can expect disruption of supplies. In such cases it is safer to hold inventories and have control.

3.1.3 Implications for Inventory Control Methods

An inventory system provides the organizational structure and the operating policies for maintaining and controlling goods to be stocked. The system is responsible for

ordering and receipt of goods: timing the order placement and keeping track of what has been ordered, how much, and from whom.

The system also must follow up to answer such questions as:

- Has the supplier received the order?
- Has it been shipped?
- Are the dates correct?
- Are the procedures established for reordering or returning undesirable merchandise?

The classification is based on whether the decision is just a one-time purchasing decision where the purchase is designed to cover a fixed period of time and the item will not be reordered, or the decision involves an item that will be purchased periodically where inventory should be kept in stock to be used on demand. Begin with a look at the one-time purchasing decision and the single-period inventory model.

Inventory control records are essential to making buy-and-sell decisions. Some companies control their stock by taking physical inventories at regular intervals, monthly or quarterly. Others use a dollar inventory record that gives a rough idea of what the inventory may be from day to day in terms of dollars. If the stock is made up of thousands of items, as it is for a convenience type store, dollar control may be more practical than physical control.

Perpetual inventory control records are most practical for big-ticket items. With such items it is quite suitable to hand count the starting inventory, maintain a card for each item or group of items, and reduce the item count each time a unit is sold or transferred out of inventory. Periodic physical counts are taken to verify the accuracy of the inventory card.

Out-of-stock sheets, sometimes called want sheets, notify the buyer that it is time to reorder an item. Experience with the rate of turnover of an item will help indicate the level of inventory at which the unit should be reordered to make sure that the new merchandise arrives before the stock is totally exhausted.

Open-to-buy records help to prevent ordering more than is needed to meet demand or to stay within a budget. These records adjust your order rate to the sales rate. They provide a running account of the dollar amount that may be bought without departing significantly from the pre- established inventory levels. An open-to-buy record is related to the inventory budget. It is the difference between what has been budgeted and what has been spent. Each time a sale is made, open-to-buy is increased (inventory is reduced). Each time merchandise is purchased; open-to-buy is reduced (inventory is increased). The net effect is to help maintain a balance among product lies within the business, and to keep the business from getting overloaded in one particular area.

REMEMBER

However, an inventory count must be taken periodically to verify the levels of inventory by item.

Purchase order files keep track of what has been ordered and the status or expected receipt date of materials. It is convenient to maintain these files by using a copy of each purchase order that is written. Notations can be added or merchandise needs updated directly on the copy of the purchase order with respect to changes in price or delivery dates.

Supplier files are valuable on suppliers and can be very helpful in negotiating price, delivery and terms. Extra copies of purchase orders can be used to create these files, organized alphabetically by supplier, and can provide a fast way to determine how much business is done with each vendor. Purchase order copies also serve to document ordering habits and procedures and so may be used to help reveal and/or resolve future potential problems. Returned goods files provide a continuous record of merchandise that has been returned to suppliers. They should indicate amounts, dates and reasons for the returns. This information is useful in controlling debits, credits and quality Issues.

Price books, maintained in alphabetical order to supplier, provide a record of purchase prices, selling prices, markdowns, and markups. It is important to keep this record completely up to date in order to be able to access the latest price and profit information on materials purchased for resale.

3.1.4 Inventory Management Approaches

Efficient and effective inventory strategy is a critical prerequisite for success for every business, regardless of size, market place,

or supply chain. No longer just offering a competitive advantage, correct allocation of inventory resources are now a necessity in the marketplace. Investments in inventory management yields large returns when they are correctly placed.

Inventory management is a crucial part of running a profitable business. Establishing an effective inventory management process can help you:

- Increase your working capital
- Analyze sales patterns
- Turn inventory into cash

Inventory management practices can help you plan, control, and organize the goods and materials required for your business. They will enable you to order the right type and amount of inventory to meet your customers' needs and keep your goods moving off the shelves.

If inventory control is managed properly, it can help your business reduce its costs, achieve economies of scale and prepare your business for uncertainties.

Best Practices

- Keep accurate inventory records: consider using inventory control software to track and analyze your sales and inventory levels.
- Put just-in-time inventory management into practice: find suppliers that can meet your needs as you fill orders.
- Pay attention to consumer and industry trends: find out what hot new items are coming to the market so you are not left with obsolete inventory.
- If you are having trouble selling items in your inventory, consider offering discounts or donating them to charity.
- Plan for the unexpected: make sure you have a good relationship with back-up suppliers to ensure that goods will be delivered if your main supplier cannot supply your products.

Set Service-level Targets

Keeping too much inventory can be expensive, and you risk losing sales if you do not have what your customers need. Setting targets for service levels can help you find a balance that works for you and your customers.

You may want to set targets and measure:

- The percentage of orders filled
- The amount of time it takes for a customer to receive an order
- The number of sales you lose if you do not have the customer's item in stock

Measure performance on a regular basis so you can adjust the targets or your process to meet your goals. Talking to your customers about their expectations can help you set suitable service level targets, so do not be shy — keep the lines of communication open.

Predict Sales

Sales forecasting can be a challenging process, but developing an accurate sales forecast will help you estimate how much inventory you will need to have on hand.

If you are starting a new business, you will need to make sales assumptions based on market research. Your local chamber of commerce may be able to help you get started, and there are online tools that can help you benchmark your company against other firms in your industry.

If you have been in business for a while, adjusting your past sales figures can help you paint an accurate picture of upcoming sales.

Economic Order Quantity is the order quantity that minimizes total inventory holding costs and ordering costs.

You can predict future sales by:

- Using past sales figures to predict future demand
- Benchmarking your company against other firms in your industry
- Analyzing your potential market

Inventory Planning and Control

Inventory planning and control are functions relating to inventory management. Business owners pay close attention to inventory as it usually represents the second largest expense in their businesses. Inventory planning includes creating forecasts to determine how much inventory should be on hand to meet consumer demand. Inventory control is the process by which managers count and maintain inventory items in the business. Inventory control requires inventory planning. Inventory refers to more than the goods on hand in the retail operation, service business, or manufacturing facility.

It also represents goods that must be in transit for arrival after the goods in the store or plant are sold or used. An ideal inventory control system would arrange for the arrival of new goods at the same moment the last item has been sold or used. The **economic order quantity**, or base orders, depends upon the amount of cash (or credit) available to invest in inventories, the number of units that qualify for a quantity discount from the manufacturer, and the amount of time goods spend in shipment.

The problem with inventory management is that keeping stock has both advantages and disadvantages.

The advantages include:

- Inventory allows customers to be served quickly and conveniently.
- Inventory can be used so a company can buy in bulk, which is usually cheaper.
- Inventory allows operations to meet unexpected surges in demand.
- Inventory is insurance if there is an unexpected interruption in supply from outside the operation or within the operation.
- Inventory allows different parts of the operation to be 'decoupled'. This means that they can operate independently to suit their own constraints and convenience while the stock of items between them absorbs short-term differences between supply and demand. In many ways this is the most significant advantage of inventory.

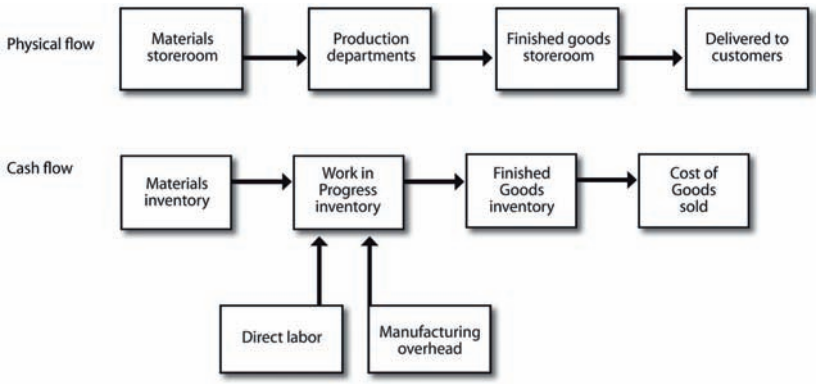
The disadvantages of inventory include:

- It is expensive. Keeping inventory means the company has to fund the gap between paying for the stock to be produced and getting revenue in by selling it. This is known as working capital. There is also the cost of keeping the stock in warehouses or containers.
- Items can deteriorate while they are being kept. Clearly this is significant for the food industry whose products have a limited life. However, it is also an issue for any other company because stock could be accidentally damaged while it is being stored.
- Products can become obsolescent while they are being stored. Fashion may change or commercial rivals may introduce better products.

- Stock is confusing. Large piles of inventory around the place need to be managed. They need to be counted, looked after and so on.

3.2 INVENTORY COSTS

Inventory costs are the costs related to storing and maintaining its inventory over a certain period of time. Typically, inventory costs are described as a percentage of the inventory value (annual average inventory, i.e. for a retailer the average of the goods bought to its suppliers during a year) on an annualized basis. They vary strongly depending on the business field, but they are always quite high. It is commonly accepted that the carrying costs alone represent generally 25% of inventory value on hand.



First, inventory cost measurement, in itself, is a tough problem. There are a number of alternative cost accounting systems that can be relevant for some purposes while being inadequate or dangerous for others. Then, it is neither always possible nor economical to keep track of all costs, or to split them and allocate them properly. To start assessing inventory costs, one has to understand that the relevant numbers would not always appear in conventional accounting records, and when it seems that they do, one still has to be careful about the set of rules and assumptions used to produce those numbers. *For Example*, at the time of combining the different costs, one needs to make sure that the elements are consistently expressed either as before-tax or after-tax and not a mix of the two.

Second, the true cost of inventory simply entails many elements and goes far beyond the cost of goods sold or raw materials. Managing and maintenance expenses immediately come to mind, but it does not stop here. Add to this insurances, interests, shrinkage, etc. The list is actually long. To produce a clear typology of these costs to help managers gets a better understanding of where they should start looking for when determining their inventory costs.

Concept and Behavior of Ordering Cost

Ordering costs are those fees associated with placing an order, including expenses related to personnel in purchasing department, communications, and the handling of related work. Lowering these costs would be accomplished by placing small number of orders, each for a large quantity. Unlike carrying costs, ordering expenses are generally expressed as a monetary value per order. Cost of procurement and inbound logistics costs form a part of ordering cost. Ordering cost is dependent and varies based on two factors the cost of ordering excess and the cost of ordering too less. Both these factors move in opposite directions to each other. Ordering excess quantity will result in carrying cost of inventory. Whereas ordering less will result in an increase of replenishment cost and ordering costs. These two costs together are called total stocking cost. This functional analysis and cost implications form the basis of determining the inventory procurement decision by answering the two basic fundamental questions how much to order and when to order.

The ordering cost also called setup costs, especially when producers are concerned, or cost of replenishing inventory, covers the friction created by orders themselves, that is, the costs incurred every time anyone place an order. These costs can be split in two parts:

- *The cost of the ordering process itself*: it can be considered as a fixed cost, independent of the number of units ordered. It typically includes fees for placing the order, and all kinds of clerical costs related to invoice processing, accounting, or communication. For large businesses, particularly for retailers, this might mainly boil down to the amortized cost of the EDI (electronic data interchange) system which allows the ordering process costs to be significantly reduced (sometimes by several orders of magnitude).
- *The inbound logistics costs, related to transportation and reception (unloading and inspecting)*: Those costs are variable. Then, the supplier's shipping cost is dependent on the total volume ordered, thus producing sometimes strong variations on the cost per unit of order.

It is not easy to produce even a rough estimate of the ordering cost, since it includes elements that are very business specific and even item specific: suppliers can be local or overseas; they can adopt rules to deliver only per palette instead of per unit, or only when a certain number of items are ordered.

Carrying Cost

They are expenses such as storage, handling, insurance, taxes, obsolescence, theft, and interest on funds financing the goods. These charges increase as inventory levels rise. To minimize carrying costs, management makes frequent orders of small quantities. Holding costs are commonly assessed as a percentage of unit value, rather than

attempting to derive monetary value for each of these costs individually. This practice is a reflection of the difficulty inherent in deriving a specific per unit cost, *for example*, obsolescence or theft.

Carrying costs are central for a "static" viewpoint on inventory, that is, when focusing on the impact of having more or less inventory, independently of the inventory flow. Again the typology varies in the literature; the categorization proposes are:

- Capital costs (or financing charges)
- Storage space costs
- Inventory services costs
- Inventory risk costs

Capital Costs

It is the largest component among the carrying inventory costs. It includes everything related to the investment, the interests on working capital and the opportunity cost of the money invested in the inventory (instead of in treasuries, mutual funds). Determining capital costs can be more or less complicated depending on the businesses. Some basic rules can be given: it is important to understand is the part financed externally versus the part financed through internal cash flow, and it is likewise important to assess the risk of inventory in one's business.

A classical way to determine the capital costs is to use a WACC (weighted average cost of capital), that is, the rate a company is expected to pay on average to all its security holders to finance its asset. Typically, capital costs tend to be vastly underestimated. The common mistake is to reduce them to short-term borrowing rates.

Storage Space Costs

They include the cost of building and facility maintenance (lighting, air conditioning, heating, etc.), the cost of purchase, depreciation, or the lease, and the property taxes.

These costs are obviously vastly dependent on the kind of storage chosen, whether the warehouses are company owned or rented, for instance. For smaller businesses, when the same building is used for different purposes, the portion of the building associated with receiving and storing inventory must be determined. In this category, make note of a problematic phenomenon: the saturation of the storage space. It can cause the costs to increase in an absolutely non-linear way by creating all kind of extra costs. For instance, when a warehouse reaches the point of saturation, it becomes hardly possible to move within the warehouse; the flows stop, sometimes entirely, and it is very difficult to remedy quickly to this situation by finding in an emergency extra storage capacity. For companies subject to this kind of problems, the time and money necessary to clean the mess and restart the flows are considerable.

Inventory Services Costs

They include insurance, IT hardware and applications (for some businesses, RFID equipment and such), but also physical handling with the corresponding human resources, management, etc. In this category the expenses related to inventory control and cycle counting. Although they are kind of a category on their own, taxes can also be added here. When using third party logistics (3PL) providers, those costs might come as a package with the storage space costs and can be quite straightforward to determine.

Inventory Risk Costs

They cover essentially the risk that the items might fall in value over the period they are stored. This is especially relevant in the retail industry and with perishable goods. Risks first include shrinkage, which is basically the loss of products between the purchase from the suppliers (i.e. recorded inventory) and the point of sale (i.e. actual inventory), caused by administrative errors (shipping errors, misplaced goods), vendor fraud, pilferage and theft (including employee theft), damage in transit or during the period of storage.

Shortage Cost

The penalty cost is the cost per unit of not satisfying the order when it is received. Shortage cost or stock-out cost is the total of all costs associated with shortage units. The use of penalty cost in inventory planning. The penalty cost should not be something pays actually. It can be like a chance of profit anyone missed, which is called the opportunity cost. However, there is a term when anybody should pay a penalty for the shortage. This happens when they have an agreement with a customer to satisfy the demand by a certain date with the right quantities.

Inventory shortage costs refer to the costs, some intangible, of running out of stock and not being able to supply customers with the goods they demand in a certain timeframe or lead time. Most of these costs are difficult to quantify. The effects of a stock shortage, and cost, mainly relate to lost sales and profits, lost customers, stock-out fines and contract disputes. Shortage costs result when demand exceeds the supply of inventory on hand. These costs can include the opportunity cost of not making a sale, loss of customer good will, late charges, and similar costs. Furthermore, if the shortage occurs in an item carried for internal use (e.g., to supply an assembly line), the cost of lost production or downtime is considered a shortage cost. Such cost can easily run into hundreds of dollars a minute or more. Shortage costs are sometimes difficult to measure, and they may be subjectively estimated.

Inventory is the stock of materials or finished goods a manufacturer or seller keeps to cater to fluctuations in unanticipated demand from the consumer end. Just as carrying excess inventory results in high cost incurred by the seller, the flipside is the inventory shortage cost. When the supplier runs out of the particular product in demand occurring within a definite lead time, a stock-out of the product occurs and he /she has to incur penalty cost of lost sales.

Inventory shortage cost is, however, difficult to quantify exactly. Lost customer, lost sales, stock-out penalties and disputes in contract. In some phase though, inventory shortage does not cost an immediate loss in sales or profit. The seller will commit to deliver the product within a particular lead time. The cost incurred in that term is the 'back-order cost'.

Thus for an operations manager, shortage cost becomes very important in deciding the optimal order quantity for known demand. A trade-off has to be made between re-order cost, inventory holding cost and shortage cost, to minimize all the three. In such a term, the optimal order quantity is given by:

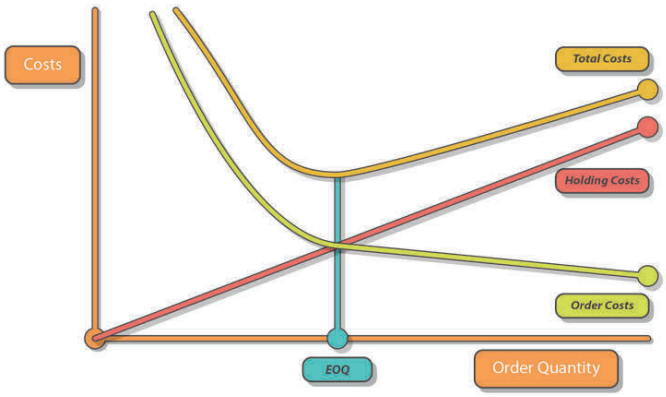
$$Q_0 = \sqrt{\frac{2 * RC * D * (HC + SC)}{HC * SC}}$$

Where, D = periodic demand, RC = re-ordering cost, HC = inventory holding cost, SC = inventory shortage cost.

3.2.1 Economic Order Quantity (EOQ)

Economic order quantity (EOQ) is the backorder quantity for replenishment that minimizes total inventory costs. The backorder is triggered when the inventory level hits the reorder point. The EOQ is calculated in order to minimize a combination of costs such as the purchase cost (which may include volume discounts), the inventory holding cost, the ordering cost, etc. The order quantity optimization is complementary to the safety stock optimization that focuses on finding the optimal threshold to trigger

the reorder. The Economic Order Quantity (EOQ) has been a well-known formula that calculates the optimal economic order quantity.



The EOQ Business Scenario

The EOQ business scenario is simple. It involves selecting the order-quantity "Q" that minimizes the average inventory-management cost/time where "time" can be a "year," a "month," or a "week" for an item with demand that goes on forever at a demand rate that never changes.

Model and Formula

The classical EOQ formula is essentially a trade-off between the ordering cost, assumed to be a flat fee per order, and inventory holding cost. Although this formula dating for 1913 is extremely well-known, and advise against using such a formula in any modern supply chain environment. The underlying mathematical assumptions behind this formula are simply incorrect nowadays.

The historical formula assumes that the cost of the act of ordering is the one key business driver. It certainly was an important factor back in 1913 when an army of clerks was required to manually keep track of the books, but with inventory management software and possibly EDI, this factor is usually insignificant. As a result, the "optimization" performed by the formula makes little sense, and completely ignores any price break that can be available when larger quantities are ordered.

Basic EOQ Model

The EOQ models are the most basic models of inventory management. The approaches in EOW models is essentially to trade-off various relevant costs and derive an order

quantity and time for placing an order such, that the total costs are minimized. The basic EOQ model and the sensitivity of costs in EOQ model to various parameters. After an extension of basic EOQ model in which term back-orders or shortage are allowed.

The classical economic order quantity (EOQ) model seeks to find the balance between ordering cost and carrying cost with a view of obtaining the most economic quantity to procure by the distributor. Literature reveals that sometimes up to 60% of the annual production budget is spent on material and other inventories. An effective customer friendly and efficient supply system could be achieved by operating on economic order supply level (EOSL) first developed in the early 20th Century by F.W. Harris, the economic order quantity approach is commonly known as the Wilson EOQ Model, or simply the Wilson Formula. This is in recognition of the aggressive expansion of the use of this strategy by R.H. Wilson, a consultant who recommended this approach to his clients, and in many instances worked with them to implement the strategy.

The goal of the economic order quantity strategy is to identify the point at which the ordering costs and the carrying cost associated with an inventory are at the lowest point possible. At the same time, the approach strives to ensure that the owner of the inventory to fulfill customer orders in a timely manner. In order to identify this ideal balance, the formula makes use of a few basic assumptions. First among the assumptions associated with the economic order quantity formula is that the ordering cost will remain constant. It is also assumed that the rate of demand will also remain constant, a factor that allows the vendor to purchase items for the inventory using recurring quantities. In addition, there is an assumption that the lead time will not change; the lead time applies to not only the customer's demand for delivery within a given amount of time, but also the ability of the supplier to fill and ship the orders to the vendor in an amount of time that is consistent. Finally, there is no change in the purchase price, and the full order is received at one time, rather than in batches or segments.

The ideal situation for the vendor is to be able to create inventory that is used to fill pending customer orders without remaining in the inventory for extended periods of time. Assuming that the materials needed to manufacture the items for inventory arrive in a timely manner, are processed efficiently, and are placed in a finished goods inventory within a reasonable period of time, inventory cost can be reduced significantly. Finished goods are pulled from inventory, assigned to a specific customer order, and shipped before there is much time for taxes to be assessed on the overall value of the current inventory. Keeping the standing inventory as close to zero as possible not only helps to minimize tax debt, but also allows the vendor to operate without the need to rent, lease, or otherwise operate warehouse space for a larger inventory. Thus, achieving the ideal economic order quantity can save a significant amount of money over the year.

EOQ with Discounts

Understanding the EOQ is essential to fully understanding quantity discounts and inventory theory. For an item with one unit price and a known recurring demand rate, there exists an EOQ that should be purchased to minimize the life cycle costs of purchasing and holding this item.

In inventory control the economic order quantity model (EOQ) is the most fundamental model, which dates back to the pioneering work of Harris. The environment of the model is somewhat restricted. The demand for a single item occurs at a known and constant rate, shortages are not permitted, there is a fixed setup cost and the unit purchasing and holding costs are independent of the size of the replenishment order. In this simplest form, the model describes the trade-off between the fixed setup and the holding costs. Though the model has several simplifying assumptions, it has been effectively used in practice. The standard EOQ model has also been extended to different settings, where shortages, discounts, production environments, and other extensions are considered.

Setup Costs are the cost incurred to get equipment ready to process a different batch of goods.

We pay particular attention to transportation and purchase costs, which involve quantity discounts both in purchasing and freight. Moreover, fixed **setup costs** of using multiple vehicles (or trucks) to meet an order. As our literature review, there is a sizable list of work on EOQ models that account for the impact of the transportation costs on the lot sizing decision. Less-than-truckload (LTL) or full-truck-load (FTL) shipments, in particular, have been the focal point of many studies. The framework proposed here gives an overall approach to solve most of those problems posed in the literature. In addition, now introduce several extensions that have not been studied in the literature before and show that these new models can also be handled within the proposed framework.

3.2.2 Inventory control

The strategy normally involves such functions as setting limits on the actual size of the inventory, while also taking care to maintain enough items on hand to allow the business to operate at maximum efficiency. When conducted responsibly, inventory

control also helps businesses to manage their tax obligations more effectively, and thus add to the overall profitability of the operation.

While there are many different theories and processes that are employed with inventory control, many of them are based on the use. This is particularly true when the inventory in question is composed of raw materials or equipment that is important to the ongoing operation of a production facility. The idea is to make sure there is always enough resources on hand to maintain the desirable level of production, but not so many resources that they languish in storage for long periods of time.

The same general approach to inventory control also applies to finished goods inventory. By accurately projecting the usage of customers, it is possible to adjust production quotas so that orders are processed efficiently, without the need to maintain large inventories to fill those orders. This aspect of inventory control can also help aid in loss prevention efforts, since the less time that finished goods remain in storage, the less opportunity there is for those goods to be damaged in some manner.

REMEMBER

The idea is to produce enough goods to meet customer demands and fill orders in a timely manner, but not create situations in which finished goods must be stored for long periods of time.

Solid inventory control also allows a business to make the most efficient use of its resources. Lower inventories means less company resources tied up in the value of the inventories themselves. Along with the lower tax burden, the company with efficient inventory control procedures can dedicate more of its available finances to other essential operations, such as marketing campaigns, research and development, and the refinement of the manufacturing process.

Classification of Material

Inventory is idle resources that have future economic value. It indicates that it may be available in different forms depending upon the production cycle stage it is in. Classification of inventory is done on this basis and thus the different classifications of inventory are as follows:

In the same manner that identify the various functions in material management with the flow of goods, and identify the different types of inventories or stocks of material maintained

in a manufacturing plant. All plants use the same general classification of inventories, including raw material, purchased parts, work-in-progress, finished goods, and supplies

Raw Material

A **raw material inventory** includes all items that, after being received at the plant, require additional processing before becoming an identifiable part of the finished product. It is obvious that the finished product of one plant such as roll, bar, and sheet steel may be the raw material of the next industrial purchaser.

Raw Materials Inventory is the total cost of all component parts currently in stock that have not yet been used in work-in-process or finished goods production.

Purchased Parts

This classification of inventory is applied to component parts of a product that need no additional processing before being assembled into the finished product. This material may be classified as raw material inventory. More times than not, however, a separate classification is justified. The TV picture tube that is the finished product of one manufacturer becomes a purchased part to the television set manufacturer.

Work in Process

This classification of inventory is self-explanatory. All material that leaves either raw material stores of purchased parts stores enters the work-in-process inventory until the product is completed and placed in finished goods. Work-in-process is the inventory of material, the flow of which is controlled by production control procedures.

Finished Goods

Again, this is self-explanatory it is the stock of finished products. Generally speaking, this classification applied to the quantities of finished goods that are held at the factory awaiting shipment. In many instances, however, it will include stocks held in warehouses owned and operated by the manufacturer, or stock held on dealers' floors on consignment. In this latter the value of the finished goods inventory is usually very high and a principal factor in the financial management of

the company. A typical example of this is the piston ring manufacturer, who, in addition to supplying the original car manufacturer, also maintains large stocks of many different sizes of piston rings in automotive supply houses for quick service to the auto repairman. Usually, these stocks are on consignment; that is the piston ring manufacturer does not receive any payment for the goods until they have been sold by the distributor.

Supplies

All the materials needed for the operation of the plant that are not used as parts of the finished product are classified as supplies. In the terms of cost accounting and identified this inventory classification as "indirect material". On the other hand, the material that becomes part of the finished product is called "direct material". Lubricating oils, sweeping compound, light bulbs, and many other items fall into the supply category.

Fixed Order quantity Model

A fixed-order quantity system is one of the most important in inventory management. For that reason need to look at how to compute the two variables that define it: the order quantity Q and the reorder point ROP. Before does that, however, need to look at the assumptions this system makes. Most importantly, the system assumes that all the variables occur at a constant rate and their values are known with certainty.

For example, the system assumes that the demand, D, occurs at a constant rate and that there is no variability in demand. Also, the lead time, L, is constant, the holding cost, H, is known and fixed, as are stock out cost, S, and unit price, C. Although these assumptions are not realistic the model is highly robust and provides excellent results despite these assumptions.

How Much to Order?

The first decision in the fixed-order quantity model is to select the order quantity Q. Recall that there are a number of inventory costs, most notably inventory holding cost and ordering cost. Now want to select the "best" order quantity that minimizes these costs the EOQ mentioned in it. This is computed by looking at the total annual inventory cost and finding the order quantity that minimizes it. Consider that the total annual cost is comprised of annual purchase cost, annual ordering cost, and annual holding cost, and looks as follows:

- Total cost = Purchase cost + Ordering cost + Holding cost
- TC = DC + (D/Q) S + (Q/2) H

Where

- TC = Total cost

- D = Annual demand
- C = Unit cost
- Q = Order quantity
- S = Ordering cost
- H = Holding cost

The first term in the equation, DC, is the annual purchase cost for items. It is comprised of annual demand (D) times the unit cost of each item (C). The second term (D/Q) S is the annual ordering cost. It is computed as the number of orders placed per year (D/Q), times the cost of each order, S. Finally, the third term is annual holding cost where (Q/2) is the average inventory held. Remember that our maximum inventory is Q units when the order is received. When inventory is depleted zero. Therefore on average is Q/2 units in inventory. H is the annual holding cost per unit of inventory.

The behavior of the two costs is shown in Figure 3.1. Notice that inventory holding cost increases with the order quantity, Q. The reason is that higher order quantities mean holding more inventories. However, this also means that ordering less frequently so ordering cost decreases. The opposite is true as the order quantity Q is decreased. A smaller order quantity results in a lower holding cost, but a higher ordering cost, as ordering more frequently.

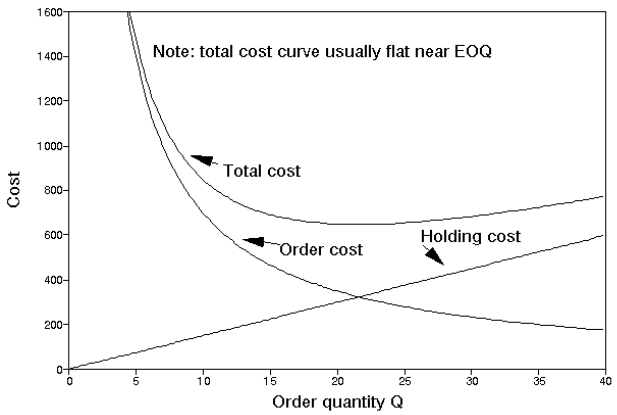


Figure 3.1: Ordering versus holding cost

The objective is to pick an order quantity that minimizes the sum of both the holding and ordering costs, which is the minimum point on the total cost curve. To compute this use calculus and end up with the classic computation of the "best" or optimal order quantity, the EOQ:

$$EOQ = \sqrt[2]{2DS / H}$$

Periodic Review and Re-order Point

Periodic review involves counting and documenting inventory at specified times. *For example,* a retail store operating under a periodic inventory review policy might count inventory at the end of each month. Continuous inventory review, also known as perpetual review, involves a system that tracks each item and updates inventory counts each time an item is removed from inventory.

For example, a retailer may use bar code scanners to record customer purchases and update inventory counts every time a cashier scans a product code.

REMEMBER

The owner or manager must make assumptions between inventory review periods regarding inventory counts.

Periodic review reduces the time a business owner or manager spends analyzing inventory counts, which allows more time for other aspects of running the business. However, it may not provide accurate inventory counts for businesses with high-volume sales. In a periodic inventory system the inventory on hand is counted at specific time intervals; *for example*, every week or at the end of each month. After the inventory in stock is determined, an order is placed for an amount that will bring inventory back up to a desired level. In this system the inventory level is not monitored at all during the time interval between orders, so it has the advantage of little or no required record keeping. The disadvantage is less direct control. This typically results in larger inventory levels for a periodic inventory system than in a continuous system to guard against unexpected stock outs early in the fixed period. Such a system also requires that a new order quantity be determined each time a periodic order is made. An example of a periodic inventory system is a college or university bookstore. Textbooks are normally ordered to a periodic system, wherein a count of textbooks in stock (for every course) is made after the first few weeks of a semester or quarter. An order for new textbooks for the next semester is then made to estimated course enrollments for the next term (i.e., demand) and the amount remaining in stock. Smaller retail stores, drugstores, grocery stores, and offices sometimes use periodic systems--the stock level is checked every week or month, often by a vendor.

Reorder Point (ROP) Control

Inventory level of an item which signals the need for a replenishment order. The reorder point is classically viewed as the sum of the lead demand plus the safety stock. At a more fundamental level, the reorder point is a quantile forecast of the future demand. The calculation of an optimized reorder point typically involves the lead time, service level, and the demand forecast. Relying on a native quantile forecast vastly improves the quality of the reorder point for most retail and manufacturing businesses. The reorder point is an important not only for inventory optimization but for inventory automation as well. Indeed, most ERP and inventory management software associate a reorder point setting to each item in order to deliver some degree of automation for the inventory management.

This method of inventory control is widely used and forms the basis for understanding other methods. It can be adapted for system-controlled processes as well as manual and visual environments. When control parameters are kept constant, ROP control is a Pull system.

A period is a consistent unit of time used for planning. Depending on the supply chain, it may be an hour, day, week or month. The important point is to maintain consistency throughout the calculations.

For each SKU, ROP requires us to define:

- Forecast demand per period (D): How much expect to use/sell
- Supplier lead time (LTs): Time expressed in periods between submitting an order and receiving delivery
- Planned order size (Q): Normal quantity of product plan to order each time Safety stock (SS): Target stock on hand just before receives an order.
- Review time (R): Time interval expressed in periods between reviews of stock levels to determine whether to place an order.
- Process lead time (LTp): time expressed in periods from receipt of goods to their being available to the customer

We then derive:

Effective lead time (ELT) = LTs + LTp + ½ R

Lead time demand (LTD) = ELT × D

Reorder point (ROP) = SS + LTD

Order-up-to level = ROP + Q

Each time review the stock, count:

Stock on hand: Real stock on the shelf

Stock on order: The total outstanding orders from the supplier

Back-orders: Any stock ordered by a customer

We derive:

Effective stock = stock on hand + stock on order – backorders

We place an order if:

Effective stock <= ROP

The amount order is:

ROP + Q – Effective stock

3.3 ABC ANALYSIS

ABC analysis is a basic supply chain technique, often carried out by inventory controllers/ materials managers, and is the starting point in Inventory control. ABC analysis is a method of inventory management that ranks the importance of different items of inventory in terms of importance to a company. This inventory method is directly linked to the consumption value of each item, which is the cost of each specific item multiplied by the amount of that item used in a specific period of time. Using the consumption value, inventory items are then ranked in three different classes via ABC analysis. The items in the A class are the most valuable to the company, while the items in the C class are the least valuable.

The most crucial consideration to be made when conducting ABC analysis is the consumption value of each item. This is done by taking the volume of a specific item used and multiplying it by the cost it takes to procure this item. Once this is done, the consumption value of a specific item should be judged as a percentage of the entire inventory level.

For example, if a specific part has a consumption value of $5,000 US Dollars (USD) and the entire consumption value of all the items in inventory is $10,000 USD, the aforementioned part would comprise 50% of the consumption value of the company's entire inventory. Once these values are determined, ABC analysis requires that inventory managers classify the entire inventory. Inventory items in the A class would be the most valuable and combined would represent about 80% of the money set aside for inventory. The B class would be moderately-priced inventory that comes to about 15% of the consumption value. Ranking last in terms of importance, the C class would be low-cost, easily-procured items representing about 5% of inventory.

The ABC analysis is an inventory categorization method which consists in dividing items into three categories, A, B and C: A being the most valuable items, C being the least valuable ones. This method aims to draw managers' attention on the critical few (A-items) and not on the trivial many (C-items).

The ABC approach states that, when reviewing inventory, a company should rate items from A to C, basing its ratings on the rules:

- **A**-items are goods which annual consumption value is the highest. The top 70% to 80% of the annual consumption value of the company typically accounts for only 10% to 20% of total inventory items.
- **B**-items are the interclass items, with a medium consumption value. That 15-25% of annual consumption value typically accounts for 30% of total inventory items.
- **C**-items are, on the contrary, items with the lowest consumption value. The lower 5% of the annual consumption value typically accounts for 50% of total inventory items.

3.3.1 Vital, Essential, and Desirable (VED)

The VED Analysis attempts to classify the items used into three broad categories, namely vital, essential, and desirable. The analysis classifies items on the basis of their criticality for the industry or company.

- ***Vital***: Vital category items are those items without which the production activities or any other activity of the company, would come to a halt, or at least be drastically affected.
- ***Essential***: Essential items are those items whose stock out cost is very high for the company.
- ***Desirable***: Desirable items are those items whose stock-out or shortage causes only a minor disruption for a short duration in the production schedule. The cost incurred is very nominal.

The VED Analysis is very useful to categorize items of spare parts and components. In fact, in the inventory control of spare parts and components it is advisable, for the organization to use a combination of ABC and VED Analysis. Such control system would be found to be more effective and meaningful.

Although not included in scientific VED analysis, in some public organizations which are static or inefficiently managed, there is a peculiar category of 'U' items which can be grouped as unnecessary. These unnecessary items get purchased due to the reasons.

- Thoughtless continuation of last purchase.
- Indifferent attitude towards hospital formulary
- Fear of change
- Poor supervision and control
- Unfair practice due to vested interest.
  - The vital items are stocked in abundance; essential items are stocked in medium amounts, and desirable items stocked in small amounts.

– By stocking the items in order of priority, vital and essential items are always in stock which means a minimum disruption in the services offered to the people.

3.3.2 High, Medium and Low (HML)

The cost per item (per piece) is considered for this analysis. High cost items (H), Medium Cost items (M) and Low Cost item (L) help in bringing controls over consumption at the departmental level.

Items are classified into three groups labeled as High Medium Low. The HML analysis is very similar to the ABC Analysis, the difference being instead of usage value, the price criterion is used. In their classification, the items used by the company are arranged in descending orders of their unit price. After this, the management of the company uses its discretion and judgment to decide the cut off lines for deciding the three categories.

HML analysis helps an organization to take decisions on these terms:

- It helps to assess the security requirements and the type of storage for high priced items. *For example*, expensive ball bearings can be kept under lock and key in a cupboard.
- The frequency of stock checking is decided on the basis of the cost item. In other words, more expensive the item, more frequent will be its stock-checking.
- A control on purchases and buying policies can be exercised by the company. This means H and M items will not be ordered in excess of the required minimum quantity. However, in the term of **L** items, they may be purchased in bulk in order to avail the benefits of bulk purchase.

3.3.3 FSN

The FSN stands for fast moving slow moving and non-moving. Here, classification is based on the pattern of issues from stores and is useful in controlling obsolescence. To carry out an FSN analysis, the date of receipt or the last date of issue, is taken to determine the number of months, which have lapsed since the last transaction. The items are usually grouped in periods of 12 months. FSN analysis is helpful in identifying active items which need to be reviewed regularly and surplus items which have to be examined further. Non-moving items may be examined further and their disposal can be considered. This analysis is to help control obsolescence and is based on the consumption pattern of the items. The items are analyzed to be classified as Fast-moving (F), Slow-moving (S) and Non-moving (N) items. The Non-moving items (usually not consumed over a period of two years) are of great importance. Scrutiny of non-moving items is to be made to determine whether they could be used or be

disposed off. The fast and slow-moving classifications help in arrangement of stock in stores and their distribution and handling methods.

3.3.4 GOLF

The GOLF analysis is carried out mainly on the basis of the source of material. GOLF stands for government, ordinary, local, and foreign. There are many imported items which are channelized through the state trading corporation, metals trading corporation, etc. certain special procedures are required to be followed for procuring such items. As such, the ordinary procedures of inventory control may not work in respect of these items. Similarly, the items which are available indigenously are treated differently on the basis of their sources, i.e. whether local or from very distant towns or from places where they have been specially manufactured. The imported items are accorded a unique treatment as they belong to a special class, i.e. totally different from the local items.

The GOLF classification of inventory items is done considering the nature of suppliers. As the source of supply of different items are different, with a view to determining the lead time, order quantities, safety stock and terms of purchase and payment.

3.3.5 SOS

In this analysis, the classification of existing inventory is based nature of supply of items. They are classified as seasonal and off-seasonal items. For effective inventory control, combination of the techniques of ABC with VED or ABC with HML or VED with HML analysis is practically used.

The SOS analysis is made on the basis of the nature of supplies. As such it classifies the items into two groups S (Seasonal) and OS (Off-Seasonal).

The analysis identifies items:

- seasonal, but available only for a limited period,
- seasonal, but available throughout the year; and
- Off-seasonal items whose quantity is determined on different considerations.

The seasonal items which are available only for a limited period should be procured and stocked for meeting the needs of the full year. The agriculture produce like raw mangoes, raw materials for cigarette and other industries, etc. are examples of such items. The prices of the seasonal items which are available throughout the year are generally less during the harvest season. The quantity required of such items should, therefore, be determined after comparing the cost savings on account of lower prices, if purchased during season, with the higher cost of carrying inventories if purchased throughout the year. And the quantity required on off-seasonal items is required to be decided on different considerations.

CASE STUDY

SPECIALIST WIRE AND ROPE MANUFACTURER

Challenge

Store issue processes were not being adhered to with many engineers failing to record their requisitions of stocked products at the point of issue.

Consequently IESA's perpetual cycle counting routines were revealing a stock accuracy reading 70% or lower, compared to the benchmark target, IESA's average achievement across open access storerooms, of 95% or higher. The value of shrinkage - un-booked items - had a monthly average run rate of £8,000. The primary impacts were the loss of budgeting data to plan and manage the maintenance department, together with the risk of items becoming potential stock outs and effecting downtime in production.

This resulted in a high proportion of the monthly issues being costed as stock losses, leading to a lack of visibility. Furthermore, anecdotal evidence suggested potential downtime impacts due to unavailable parts.

Objectives

- A target was set to reduce the quantity and value of unrecorded stock losses by 75% through a culture and compliance change initiative.
- Additionally an immediate target of 90% stock accuracy was set, with the intention of increasing that target in the medium term to the industry wide measure of>95%.

Solution

IESA engaged with the engineering department and their management team to devise and implement a bespoke set of published KPI measures.

The measures recorded and ranked individual engineers based on their propensity for correctly recording their stock item requisitions, the aim being to drive process compliance through a combination of visibility and management support.

Additionally, IESA increased the scope of the perpetual inventory checking procedures together with the frequency to eliminate any potential, residual inaccuracies so as to be able to accurately track improvements as they were achieved.

IESA also provided the site with a set of bespoke, highly visual KPIs, exclusively for the engineering department, and this information was shared with key stakeholders and compliance was monitored at an individual level.

The information was shared on a monthly basis at a pre-arranged review meeting, progress was tracked and targets amended once they had been achieved. IESA also ran a high profile communication campaign alongside the KPI graphs to reinforce the message of compliance.

Benefits

- IESA's data management facilities allowed us to trace, on behalf of our client, the improvements in stock accuracy and process performance on a continued basis.
- Through April and May 2013 the barcoded systems recorded a doubling in the volume of recorded issues.
- The value of un-recorded stock issues has also fallen significantly, to below the 75% reduction targeted. The net effect of these improvement measures has been improved budget data for the engineering management team, increased stock availability and reduced production downtime, allowing the client to plan and cost maintenance activities with traceability and accuracy.
- Within four months the stock accuracy, based on results from daily cycle counts, improved dramatically to 90%, and it is anticipated that the target of 95% will be passed during Q4 2013. The KPIs will continue to be compiled and assessed in order to avoid any retrograde movemen

SUMMARY

- In general, inventory management refers to the method by which businesses handle tangible resources and materials in order to make sure resources are readily available for use.
- Inventory refers to the total number of items, goods or materials that a company has in stock.
- Inventory' and 'stock' are often used to relate to the same thing; yet when inventory management is mentioned, there is however a slight difference with stock.
- Inventory only exist because there is a difference in the timing or rate of supply and demand.
- Decoupling inventory involves separating inventory within a manufacturing process.
- Cycle stock inventory is the portion of an inventory that the seller cycles through to satisfy regular sales orders.
- Production plan, changes in response to the sales, estimates, orders and stocking patterns.
- An inventory system provides the organizational structure and the operating policies for maintaining and controlling goods to be stocked.
- Inventory planning and control are functions relating to inventory management. Business owners pay close attention to inventory as it usually represents the second largest expense in their businesses.
- Inventory costs are the costs related to storing and maintaining its inventory over a certain period of time.
- The penalty cost is the cost per unit of not satisfying the order when it is received. Shortage cost or stock-out cost is the total of all costs associated with shortage units.

KNOWLEDGE CHECK

1. In product costing and capacity management, capacity utilization and its cost are fixed

a. for short run

b. for long run

c. for one day

d. for few days

2. **In operating income strategic analysis, strategic component which measures change in cost attributed to price of input in current year relative to price of input material in last year is classified as**
   a. internal process component
   b. growth component
   c. price recovery component
   d. productivity component
3. **Ability of any accounting system to point out use of resources in every step of production process is classified as**
   a. back-flush trails
   b. audit trails
   c. trigger trails
   d. lead manufacturing trails
4. **Inventory carried for the purpose of providing flexibility to each decision-making unit to manage its operations independently is known as**
   a. Pipeline inventory
   b. Safety inventory
   c. Cycle inventory
   d. Decoupling inventory
5. **Cycle inventory helps in**
   a. taking care of uncertainty in demand and supply of products/components
   b. providing flexibility to each decision-making unit to manage its operations independently
   c. taking care of any special event that does not occur on a regular basis
   d. taking advantage of economies of scale and reducing cost within the supply chain

CHECK YOUR RESULT

1. (a) 2. (d) 3. (b) 4. (d) 5. (d)

REVIEW QUESTIONS

1. What do you understand by inventory? Explain its types.
2. Explain the inventory management.
3. Describe the inventory costs.

4. Write the short note on "Inventory control".
5. Explain the ABC analysis.

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CHAPTER

4

ASSESSMENT OF DISTRIBUTION CHANNELS

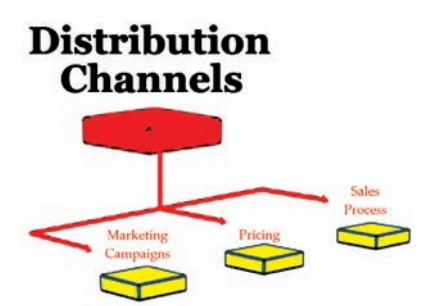
LEARNING OBJECTIVES

After studying this chapter, you will be able to:

1. Describe the customer service strategy
2. Explain the identification of service needs
3. Understand by cost of services
4. Define the revenue management

INTRODUCTION

Overseeing the movement of goods from supplier or manufacturer to point of sale. Distribution management is an overarching term that refers to numerous activities and processes such as packaging, inventory, warehousing, supply chain and logistics. A distribution channel is the chain of businesses or intermediaries through which a good or service passes until it reaches the end consumer. A distribution channel can include wholesalers, retailers, distributors and even the internet. Channels are broken into direct and indirect forms, with a "direct" channel allowing the consumer to buy the good from the manufacturer and an "indirect" channel allowing the consumer to buy the good from a wholesaler. Direct channels are considered "shorter" than "indirect" ones.



A distribution channel is the network of individuals and organizations involved in getting a product or service from the producer to the customer. Distribution channels are also known as marketing channels or marketing distribution channels. The two primary channels are direct and indirect, but there are different sub-channels within those categories. With the direct channel, the vendor of a product or service sells directly to the customer. The vendor may maintain its own sales force to close deals with clients or sell its products or services through an e-commerce website. The direct sales approach requires vendors to take on the expense of hiring and training a sales team or building and hosting an e-commerce operation.

4.1 BASIC CONCEPT OF CUSTOMER SERVICE STRATEGY

A customer service strategy is an important part of any business plan. Since business relies on customer satisfaction, any good business should develop a strategy that not only draws in customers, but keeps them happy so they are not tempted to try out a competitor.

Organizations need to incorporate customer service into their business goals and those strategies should be incorporated into employee goals to help the organization reach their customer service objectives.

Employees only perform at the level they are managed and it takes great leadership to help employees understand the importance of the customer experience. This is why it is important to have a strategy to help create and reinforce a service culture.

Significance

An effective customer service strategy has several steps, according to Cambridge Consulting. It should focus on both how the business handles its customers as well as properly training the employees.

Considerations

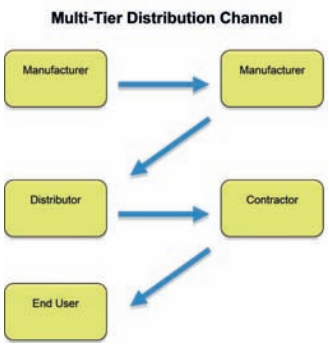
Customer input is a valuable part of any effective customer service strategy, according to Cambridge consulting. By knowing how the customers feel about the business, you are able to change the things they do not like and promote the aspects that makes them want to continue buying from you.

Function

A customer service strategy not only discusses what you do with customer feedback but how you will obtain their opinions. Some companies employ surveys, while others feel speaking to client's one on one may be more effective.

4.1.1 How to Develop a Distribution Channel Strategy

A distribution channel strategy enables you to sell to customers in geographical areas or market sectors that the direct sales team cannot reach. You can choose from a number of distribution channels, including wholesalers, retailers, distributors and the Internet. Each channel gives you different options for dealing with customers and prospects. However, to ensure that the distributors operate effectively on the behalf, the strategy must incorporate the right level of control and support.



Reach

If the **strategy** is to grow the business regionally or nationally, highlight the geographical areas you want to reach through a distribution channel and identify a network of distributors or retailers that provide existing coverage of the territories. If you are planning to export products, focus on established distributors with detailed local market knowledge. Consider marketing the products on the Internet so that you can extend coverage to customers where there is no suitable physical distribution network.

Strategy is a high level plan to achieve one or more goals under conditions of uncertainty.

Cost

Although a distribution strategy gives you a ready-made platform for expansion, it's important to compare the cost of dealing through indirect distribution channels with the cost of setting up the own network or direct sales operation. Without a distribution network, you will have to commit resources to order processing, stockholding, delivery, invoicing and customer service. Compare that with the lower margins you will make by giving distributors a discount for providing a similar level of service and providing them with a program of marketing and training support.

Contribution

The strategy should also take account of the potential contribution of each distribution channel. Concentrate on working with distributors that give you access to an additional customer base, with no additional direct sales and marketing costs. Distributors also provide you with local market knowledge, enabling you to establish the business in new markets without incurring heavy market entry costs.

Support

Support and control are critical factors in the distribution strategy. Appointing a manager to work with distributors enables you to monitor their performance and identify their support needs. Develop marketing support programs to meet the needs of different channels. Options include funds for advertising or direct marketing campaigns or templates that

enable partners to develop their own campaigns. If channel sales represent a significant proportion of the business, develop advertising and marketing campaigns to drive business to the channel partners. Operating a training program will improve distributors' product and marketing knowledge and enable them to deliver a higher standard of service to customers.

Customer Service

It's important to identify the types of customers you wish to serve directly. Typically, these would be the largest customers or customers that demand levels of technical support beyond the partners' capability. Use channel partners to deal with large numbers of smaller customers cost effectively so that you can concentrate the resources on the key accounts

4.1.2 Strategies and Tactics for Exemplary Customer Service

Providing exemplary levels of service can improve the reputation of the company and encourage repeat business, a necessity for a small operation. Facilitating high-level customer service involves understanding the customer and educating the employees about the company's policies and procedures as they relate to customers. The more you empower and encourage the employees to serve consumers, the greater the overall levels of service and customer satisfaction.

Develop Customer Service Standards

Create a written customer service training guide, and use it to educate employees on the preferred practices. *For example*, establish and explain liberal exchange and

return policies, negotiable prices and empathetic approaches to handling distraught customers. Give employees authority to independently resolve customer issues on the spot to limit frustration and increase appreciation for the business.

Encourage Empathy

Customers can become frustrated if the company representative they are dealing with seems to have no empathy for their problem. Especially with a small company, customers want to believe their business with you matters and that their issues are acknowledged. Encourage employees to express understanding when a customer is troubled or disappointed. This approach places no blame on you or the company, but it validates the fact that the situation is distressing for the consumer.

Encourage Basic Kindness

Simple acts of kindness can go a long way in elevating service levels in every type of business. Direct employees to acknowledge customers when they enter the business maintain eye contact and engage them in conversation. Employees should ask if they can be of assistance yet allow the customer to browse and shop at their own pace. Encourage employees to look for ways to accommodate customer preferences where possible and, if an issue arises, to take immediate steps to handle it or refer it to someone else who has authority. Employees should remain attentive at all times and never let a customer see them engaging in idle chitchat or personal matters when he needs service or attention.

Go Above and Beyond

Give customers more than they expect, rather than the bare minimum. Providing extras, freebies, discounts or unexpected levels of service go a long way in creating an exceptional customer experience. *For example*, honor a coupon that expired the day before, help an elderly woman to her car with her purchases or open a new register yourself when the employees are overwhelmed. Small niceties go a long way and make a big impression.

4.1.3 Customer Service Characteristics

Any successful company owner or employees can tell you that quality customer service is a cornerstone to the success of the business. Without a service department that is satisfying customers, loyalty may not form and customers may not return. Poor customer service spreads by word-of-mouth and discourages new customers from trying the product or service. Several characteristics should be present in a quality customer service representative.

Listening Skills

A **customer service** representative must be able to listen to the needs of the customer. They take notes and summarize the customer's words back to them to ensure understanding. Instead of planning their answer or retort as the customer is speaking, they listen with the goal of comprehension.

Asking Skills

Those in customer service know that asking the right questions can yield the answers that are necessary to solve the problem or address the issue. Quality questions help to uncover the actual needs, goals, objectives and concerns of the customers so the representative can work to meet those needs and alleviate the concerns.

Customer service: is the provision of service to customers before, during and after a purchase.

Responsible

To work in customer service, responsibility is a must. This responsibility is two-sided, as it covers the agents' responsibility in attendance, service, loyalty and attitude. It also covers the ability of the agent to take responsibility for mistakes and results to know that their own actions determine the results in customer situations.

Responsive

Each need, question or concern is addressed in quality customer service. Bypassing a question because the answer is not known can leave a customer feeling ignored. Many service-related inquiries are multi-faceted so it is important to fully respond to one inquiry before moving to another.

Knowledgeable

Customer service agents should be completely knowledgeable in the department/product/service for which they are responsible. Along with this knowledge comes confidence, which leads to customer satisfaction. If a situation arises where an agent does not know an answer, he must be willing to admit not knowing, and find the answer or pass the client to a representative that can answer the question.

Complete

A customer service representative should work through a situation to its completion. Instead of being quick to hand off the problem or hesitant in working through a customer's needs, the agent should be thorough and work through each situation step-by-step until it is resolved.

Timely

Customer service is at its best when it is prompt. Allowing a customer to sit on hold or wait in the store for an available representative is unacceptable. The timely response to a request, question, concern or problem is the first step to a solution. This may not always be speedy, but it should be efficient and thorough.

Customer service technique is about finding a balance between relating to a customer, and still being professional. Address the customer professionally, avoid using slang and never yell at a customer even if the customer is yelling at you. Remain professional, regardless of how the customer acts.

Accurate

Any information relayed from a customer service representative to a customer must be 100 percent accurate. Whether it is instructions on assembly or performance, or information on warranties, everything must be factual. Along with accuracy in fact, the representative should be precise in the actions performed on the customer's behalf.

4.1.4 How to Develop a Customer Care Strategy

An effective customer care strategy is essential to the growth of the business. The strategy defines the standards of care and service that you offer customers and sets the requirements for meeting those standards. A customer care strategy plays an important role in building customer satisfaction, helping you to retain loyal customers and increase levels of repeat business.

Step 1

Develop a vision for the standard of customer care the company will deliver. This takes the form of a statement, such as "To become recognized as the leader in customer care in the marketplace." Communicate the vision to all employees so that they are aware of the commitment to realizing the vision. Publish the vision on the website and in the marketing communications so that customers are also aware of the commitment.

Step 2

Establish how customers perceive the standards of care the company currently offers. Review any feedback from customers on customer care issues. Ask staff who deal with customers to highlight any current problems. Carry out Internet research on companies that are acknowledged as leaders in customer care to identify factors that contribute to their success. Search on a term such as "customer care success stories." Use the customer feedback and the Internet research to establish a benchmark for the customer care strategy. Compare the current performance with the benchmark to establish the priorities in the strategy.

Step 3

Identify the activities or business processes that impact on customer satisfaction. Set out a framework for improving performance in critical areas of customer care, such as time to respond to customer inquiries, delivery times, and accuracy of invoicing or ability to resolve service problems quickly. List the customer care activities, identify the individuals or departments who deliver customer care and set out the performance standards for each activity. The framework provides overall direction for the company

and focuses employees on their role in delivering customer care. Establish a timescale for delivering the strategy. Set key dates for achieving performance standards and include dates for holding regular review meetings.

Step 4

Appoint customer care champions. Select managers and employees with a commitment to high standards of care to take responsibility for coordinating the implementation of the customer care strategy. Customer care champions communicate the importance of customer care to other employees and work with them to ensure they can meet the performance standards relating to their jobs. By working closely with employees, they can also share best practices and identify any training needs.

Step 5

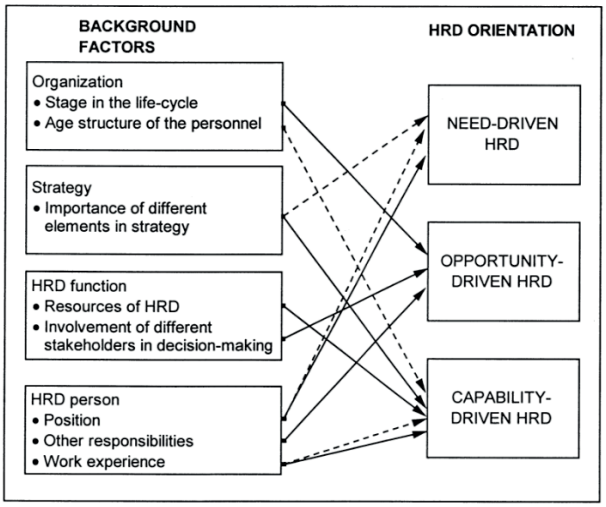
Build an incentive and reward scheme into the customer care strategy. Recognize employees who have made a significant contribution to customer care by publicizing their achievements and offering them an award. Introduce a competitive element into the program by setting targets for different departments and rewarding the top-performing departments.

Step 6

Include a technology strategy, as well as a people strategy, in the customer care strategy. Investigate technology that can improve convenience for the customers. Setting up a self-service page on the website where customers can find solutions to popular technical queries, *for example*, helps customers to resolve issues quickly. Including a link to a customer service specialist for additional support improves customer care and convenience even further.

4.1.5 HRD Intervention for Customer Service Strategy

When the employees provide poor service, it's a reflection of the business management and can do irreparable harm to the company. Human resources intervention through counseling, training and mediation can help improve overall service levels and elevate the image of the business. It can also improve job satisfaction, reduce turnover and improve the business income.



Orientation

Your human resources department manager should ensure every employee is trained and well-versed on customer service policies prior to beginning work. This can be accomplished through a comprehensive orientation program, on-the-job training or job shadowing. You can also use an employee manual or guidebook for additional reference.

Ongoing Training

Employees should undergo regular retraining on best practices in customer service. Human resources may opt to intervene when there are specific customer service complaints, but mandatory all-staff training can also be an effective deterrent against poor service as well. Consider role-playing activities, reading through customer complaints and compliments in a group setting and inviting staff participation to address how service levels can be improved.

Mentoring

Mentoring can be an effective human resources intervention tool for promising employees who need to improve their ability to interact effectively with customers. Pair new or challenged employees with seasoned staff members to help them develop their skills. Do not leave problem employees on their own during busy shifts or with high-end customers until you are confident of their ability to represent the company in a positive way.

Trouble-Shooting

Address customer service complaints with staffers as soon as they arise. This can be accomplished through one-on-one human resources counseling, performance evaluation or conflict mediation and dispute resolution. Create a system where employees know they can access an HR representative with customer service issues as needed.

Monitor Service Levels

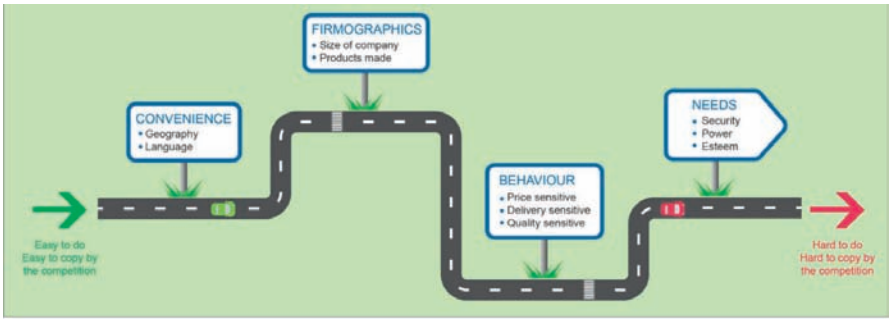
Continually use human resources development strategies as a way to improve customer service initiatives. Conduct customer satisfaction surveys and use the findings when developing training programs. Host focus groups made up of current and previous customers solicit online feedback and encourage staffers to share customer comments. This allows you to continually monitor the satisfaction levels of customers and make change as needed.

Follow-Up

Follow up with staffers to ensure training is effective and provides desired results. If staffers need to improve skill levels in other areas to help them improve service levels, ensure they get it. This can increase an employee's self-esteem and improve confidence, which can have a collective positive impact on the service levels they are able to provide.

4.2 IDENTIFICATION OF SERVICE NEEDS

Strategies for identifying customer needs are an integral element of a company's marketing program. Understanding customer needs helps refine product development projects, marketing communication programs and distribution choices. Companies that launch products without researching and taking account of customer needs run a high risk of failure.



Research

Carrying out customer research as part of the marketing strategy provides a broad view of customer needs. Review published market research on the sectors that you target to identify trends or changes in purchasing patterns. Visit customers' websites to assess their product and market strategies and identify opportunities to meet their current or future product needs.

Customer Feedback

A strategy that encourages customer feedback will provide you with insight into customers' attitudes toward the products and services, helping you identify how well you are meeting their needs. Set up a forum or poll on the website or on a social media site where customers can post reviews or leave comments. Encourage customers to join a user group or other community where they can share their experience in using the products and make recommendations for changes or improvements. Acknowledge the feedback from customers and respond to requests for improvements.

Social Media

Incorporating social media in the communications strategy enables you to track discussions on the products and those of the competitors. Input from social media adds further insight to complement the information you get from customer feedback. Monitor social media that mention the company and respond to comments to engage customers and prospects in dialog.

Collaboration

Building collaboration with customers into the new product development strategy ensures that products reflect customers' needs. Involve representatives of key customers

in the product development project team, asking them to provide input on product requirements or feedback on product proposals. Set up a panel of customers to test or evaluate new product prototypes. In the software industry, *for example*, publishers release beta versions to selected customers for evaluation before finalizing products for general release.

Customer Relationship Management

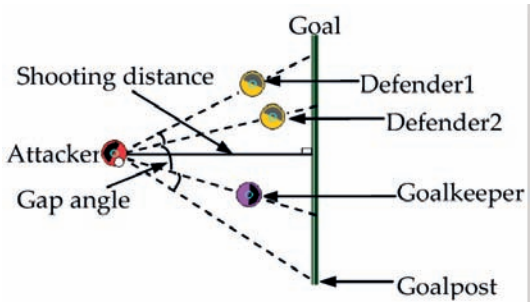
A customer relationship management strategy enables you to develop insight into customer needs from the own records. CRM systems collect data on all customer contacts and transactions, providing information on purchasing and service history, product inquiries, complaints, **communication** channel preferences, and response to marketing campaigns. By analyzing the data in a CRM system you can build a picture of individual customer's needs and preferences.

Communication is the act of conveying intended meaning to another entity through the use of mutually understood signs and semiotic rules.

4.2.1 Identification of Service Gaps and Needs\ Goals\Strategies and Implementation

The identification of needs and gaps is paramount to a coordinated transportation plan and a coordinated ever improving system. The following is not an exhaustive list but represents a consensus from discussions held during HSTC meetings, as well as possible strategies for service providers to use in order to fill gaps in service. This list seeks to provide direction for funding and efforts to improve the current transportation system and any agency providing or purchasing transportation for clients should consider this plan and its objectives when making decisions affecting transportation services. Each identified gap represents an area for improvement within the existing transportation system. All organizations which provide transportation are urged use the strategies listed or share, with the Committee, any best practice strategies that will meet the needs presented by the identified gaps. Agencies which plan on requesting grant money to provide transportation, or that may do so in the future, should take into account strategies and methods of coordination which involve communication, service, and possible resources. Each general gap is followed by a goal,

strategy for achieving the goal and closing the gap, and a quick description of the problem.



Gap 1: Lack of coordination among existing providers

Goal - Coordinate transportation among existing providers.

Strategies to accomplish this goal include:

- Provide travel training and coordinate with social service agencies to train able riders to use the local mass transit system when available instead of providing services through a Para transit service.
- Negotiate fares with social service agencies for passengers who utilize the Para transit service.
- Periodically review funded vehicles and stated need

Although many counties now have countywide public transit, funding issues restrict full service of rural areas. Increased coordination, in various forms, between all transportation providers does not necessarily mean following one particular path. It does mean having providers come together and discuss what options might exist to reduce costs, increase the number of trips that can be completed, increase efficiency so that limited dollars can do more, and improve the quality of life for those who are served by transportation, and those who are currently unable to be served.

Some strategies to consider, a network of volunteers willing to provide training to residents that would increase transportation options and availability to underserved population. The TRIP program has materials available for training the trainer and incorporating a regional bank of volunteers that would be available to do one-on-one training with riders.

Also, if agencies wish to access federal transportation dollars or have a need to provide transportation for clients the 5310 CVP (Consolidated Vehicle Procurement) process would be a beneficial resource. Agencies must attend and participate in RTC (Regional Transportation Committee) meetings and give input into the HSTP planning process. During the application and endorsement process a review of a provider's current vehicle status, new requests, and need would be done to determine if effective and efficient services are being provided.

It is hoped that greater participation with the HSTC will lead to a better environment for coordination. It will help to provide service and guidance needed to coordinate or improve current services. And, agencies will use the committee in order to network and collaborate on possible new demand for routes.

REMEMBER

Service contracts are another way for providers to collaborate with each other to negotiate reasonable fares, establish new or improve current routes and service contracts usually save DHS providers money.

Gap 2: Lack of Transportation for Medical Services

Goal - Increase transportation for health care purposes

Strategies to accomplish this goal include:

- Increasing the coordination between social service agencies, this will allow transit agencies to provide services to more individuals.

The need to increase transportation for medical trips is one of the most widely and often discussed topics in the region and is a most dire need for some transit disadvantaged individuals

Coordinated services could include performing gather-type trips for passengers traveling to a common medical\health care destination. *For example*, common drop off locations would be established for multiple passengers that would allow one bus to pick up those passengers and travel to the common destination.

It is also imperative that the transportation service providers work closely with the medical field (hospitals, medical offices, and ambulance) to increase access to non-emergency medical needs for the residents. Also, in some regions providers are obtaining stretcher vehicles which are a benefit to the ambulance services, transit providers & persons needing emergency assistance.

Gap 3: Lack of county-through-county services

Goal - Coordinate transportation throughout counties

Strategies to accomplish this goal include:

- Coordinate between counties and develop transfer locations to minimize the number of vehicles used to complete trips

All providers have indicated that they travel to these areas on a frequent basis. This could be done more effectively and maximize transportation budgets by establishing common areas or transfer stations that riders could easily get and be transported either to their destination or to another transfer station. A system using a website that would map each providers trips, other internet based tools, networking sites, or ITS would need to be implemented thus creating a source of communication and linkages to efficiently run county through-county services.

Gap 4: Need for extended service hours

Goal: Temporal gaps in service (provide transportation during evening and weekend hours)

Strategies to accomplish this goal include:

- Develop a study in those areas to determine the level service that may be provided based on population density
- Determine what area does not provide weekend/evening services

Coordination efforts could combine the two services but it must be determined if communities have a true need for extended services. One way to get this information would be for all providers to work together, possibly thru the HSTP Committee, to develop a survey that would be distributed to current riders and potential riders in each county. This would provide a prospective of what the need truly is. The Provider Inventory section of the HSTP Plan would show the hours of service, service area and other helpful information of each provider that could assist in getting the coordination process started in the communities that are determined to have need.

4.3 COST OF SERVICES

Utilities' revenue requirements the amount of money needed for a utility to operate and maintain facilities, cover capital expenses, and provide an opportunity to earn a profit are evaluated, and usually in a follow-up phase, rates to collect that revenue are set. For some utilities, the amount it costs to purchase water, electricity, or natural gas for their customers, and/or fuel to generate power is also part of their revenue requirement but may be reviewed more frequently or in a separate proceeding. Sometimes, these later expenses are approved based on forecasts, then reviewed again after purchased to ascertain if the expense was reasonable.

REMEMBER

Cost control is an important factor for maintaining and growing profitability. Outsourcing is used frequently to control costs because many businesses find it cheaper to pay a third party to perform a task than to take on the work within the company.

4.3.1 How to Calculate Total Cost

In the world of finance, when someone refers to "total cost," she can be talking about several things. She may be referring to the costs of running a business, the costs included in one individual's personal budget, or even the costs of something being proposed Luckily, no matter what you are calculating the "total cost" for, the basic approach will be similar simply add the fixed costs the minimum costs required to function to the variable costs

Calculating Total Cost for a Personal Budget

Calculate the fixed costs: Start finding the total cost of living by tallying up all of the fixed costs for the time period you is looking at. Note that most (but not all) personal budgets are calculated monthly.

- In this case, fixed costs are expenses that **must** be paid every month. These include rent, utilities, phone bills, gasoline for the car, groceries, and so on. Fixed costs do not change very much (if at all) from month to month. These are costs that do not increase or decrease depending on how much personal spending you do in a month for instance, if you go on a shopping spree at the favorite clothing store, the rent would not go up.

Let's say that we need to put together a personal budget to save money. In the case, the fixed costs are: rent = $800, utilities = $250, phone bill = $25, internet bill = $35, gasoline for commuting to work = $200, and groceries = $900. Adding these up, we find that the total fixed costs are ***$2210.***

Add up the Variable Costs for one Month

In contrast to fixed costs, variable costs depend on the lifestyle and include all expenses that are not strictly necessary, but that improve the quality of life.

- Variable costs include expenses like shopping trips, nights out, clothing (beyond what you need), vacations, parties, gourmet food, etc. Note that, even though expenses like utility bills can *vary* slightly from month to month, they are not variable costs because *they are not optional.*
- In the example situation, let's say that the variable costs include: money for theater tickets = $25, weekend vacation = $500, dinner party for a friend's birthday = $100, and a new pair of shoes = $75. This would bring the total variable costs to $700.

Add the fixed costs to the variable costs to get you total cost

The total cost of living on the budget is the total amount of money you spent over a one month period. The formula for finding this is simply fixed costs + variable costs = total cost.

- Using the examples of fixed costs and variable costs given above, we would calculate the total cost as follows: $2210 (fixed costs) + $700 (variable costs) =$2910 (total cost).

Track the Spending to Determine the Monthly Expenses

Unless you are already practicing very good financial habits, you may not keep track of every single expense in a given month. This means that you can run into problems when you have to total up all of the expenses at the end of the month.

To remove guesswork from the equation, try actively tracking the expenses for one full month. After this, you will have a good idea of the fixed costs, so you will only need to track the variable costs in the future.

- Tracking fixed costs is easy simply keep track of the housing expenses (rent, etc.) and save every major monthly bill you receive for that month and you will have a good deal of the work done. Groceries can be a little messier to keep track of, but if you keep the receipts or monitor the checking account transactions online, it should not be hard to get an accurate total.
- Tracking variable costs can be a little more difficult. If you use credit or debit cards to make all of the purchases, you can simply add the expenses at the end of the month by using the online banking profile (nearly all checking accounts and credit card accounts now give you this option for free.) On the other hand, if you make lots of cash or check purchases, you will want to save the receipts or write down the amount of money you spend with each purchase.

4.3.2 Calculating the Total Cost for a Business

Add up the business's fixed costs: In the world of business, fixed costs are often referred to as overhead costs. This is the money the business needs to spend simply to keep operating. More accurately, we can say that fixed costs are the costs that do not increase or decrease as the business produces more or fewer goods and services.

- Fixed costs for a business are similar to (but not exactly the same as) those for a personal budget. A business's fixed costs include rent, utilities, building leases, equipment, machinery, insurance premiums, and labor not involved in the production of the goods and services.

- *For example*, let's say that we own a basketball factory. the monthly fixed costs include: building lease = $4,000, insurance premiums = $1,500, loan payments = $3,000, and equipment = $2,500. In addition, we pay $7,000 per month for workers that do not directly affect the production of the basketballs janitors, security guards and so on. Adding these up, we get a value for the fixed costs of $18,000.

Figure out the variable costs: In business, variable costs are a little different than they are for personal budgets. A business's variable costs are the expenses that are directly affected by the amount of goods or services produced. In other words, the more a business creates (in terms of products produced, services rendered, and so on), the greater its variable costs will be.

- Variable costs for a business include things like raw materials, shipping expenses, labor that is involved in the production process, and so on. In addition, utilities can be a variable expense if they fluctuate with the output of the business. *For example*, since a robotic car factory uses a large amount of electricity and since the amount of electricity needed will increase as more cars are produced, utilities can be classified as a variable cost.
- In the basketball factory example, let's say that the variable costs include: rubber = $1,000, shipping = $2,000, factory worker wages = $10,000. In addition, the factory uses a large amount of natural gas for the rubber vulcanization process and this cost increases as production ramps up this month's utilities bill was $3,000. Adding up the expenses, we get total variable costs of $16,000.
- Add the fixed and variable costs to determine the total cost. As with personal budgets, the formula for calculating a business's total costs is quite simple:

Fixed Costs + Variable Costs = Total Cost.

In the example, since the fixed costs are $18,000 and the variable costs are $16,000, the total monthly cost for the factory is $34,000.

Find the business's costs on its income statement: Most businesses' fixed and variable costs can be found on their financial documents. Specifically, the *income statement* should contain all of the variable costs tied to the production of the business's goods and services in addition to crucial fixed costs like rent, utilities, and so on. The income statement is a standard financial document nearly all businesses with some sort of accounting operation should have one.

- In addition, you may want to consult another document called a balance sheet to determine how much money the business needs to pay back in the future. The balance sheet contains a business's liabilities the money it owes to others. This can help you determine the business›s financial health: if you are just barely making enough money to meet the total cost and you have major liabilities, the business may be in an unfavorable position.

4.3.3 Calculating the Total Cost of an Investment

Find the initial price of the investment: When it comes to determining the cost of an investment, the expenses usually do not begin and end with the money you put into the stock, mutual fund, etc. For people without direct access to the stock market (i.e., most ordinary people), it's necessary to use an investment adviser or broker to help build a portfolio and, because these experts do not work for free, the cost will be a little higher than the money set aside for the investment. Start determining the cost of the investment by identifying the amount of money you plan to use purely for the investment.

- As an example, let's say that you have recently inherited $20,000 from an obscure relative and that, rather than squandering it all on a luxurious vacation, we want to invest half of it in the stock market to get some long-term potential out of it. In this case, you will say that we are investing $10,000.

Account for any fees: As noted above, investment advisers do not usually work pro bono. Generally, an adviser will need to be paid in one of two ways: via a flat fee (usually hourly) or via a commission (usually a percentage of the investment). In both cases, determining the impact on the total cost is simple. For fee-based investment services, multiply the adviser's hourly rate by the amount of time spent on the portfolio and includes any minor associated fees.

- For the purposes of the example, let's say that the chosen adviser charges $250/hour (not bad prices can easily range to $500/hour). If she agrees that it will take two hours of work to put together the portfolio, her fee will be $500. Let's say we need to add $100 to this in the form of various minor fees and we get a total of $600.

If necessary, add the commission

Another way to pay the adviser for handling the investments is in the form of a commission. This is generally a small percentage of whatever you buy through the adviser. The more money you invest, the smaller the percentage usually is.

In the example, let's say that, on top of her flat fee, the adviser also charges a 1% commission. This is only *for example* purposes in the real world; it's usually either one form of payment or the other, not both. In this case, since 2% of the $10,000 we want to invest is $200, you will add this to the total cost.

- *A word of caution*: because their pay is determined by how much you buy and sell, some commissioned investment advisers have been known to act unethically, convincing clients to ditch old stocks and buy new ones frequently in an effort to line their own pockets. Only use the services of advisers that you know and trust. If all else fails, flat fee-paid advisers tend to have less of an incentive for conflicts of interest.

Account for taxes: Finally, add the cost of any government taxes incurred as part of the investment process. In the U.S., taxes can be (and are) levied on investment income *after* you have already invested the money, but, when determining the total cost of an investment, you are generally more worried about taxes that are levied up-front. These can vary from locality to locality, so talk to a trusted investment adviser about the tax burden before you agree to invest.

- In the example, let's say that there is a 1% tax on all major investments (in the real world, again, this may or may not be the case where you live.) In this case, since 1% of $10,000 is $100, you will add this to the total cost.

Add it all up: Once you know the initial investment, any associated fees and commissions, and any expected taxes, you are ready to find its total cost simply add each individual cost together.

- Let's solve the example problem:
- Initial investment: $10,000
- Fees: $600
- Commission: $200
- Taxes: $100
- Total: $10,900

REMEMBER

Businesses face important decisions regarding what to sell, when to sell, to whom to sell, and for how much. Revenue management uses data-driven tactics and strategy to answer these questions in order to increase revenue.

4.4 REVENUE MANAGEMENT

Revenue management, also known as yield management, is a process for capacity-constrained industries to maximize profitability by allocating the right inventory to the right customers at the right price. RM concepts are pertinent to virtually everything that is sellable in advance, transient, capacity constrained, allows discrimination among market segments, and has inconsistent demand patterns and low marginal servicing cost. "Revenue management is the application of disciplined analytics that predict consumer behaviour at the micro-market level and optimize product availability and price to maximize revenue growth". The primary aim of revenue management is selling the right product to the right customer at the right time for the right price and with the right pack. The essence of this discipline is in understanding customers' perception of product value and accurately aligning product prices, placement and availability with each customer segment.

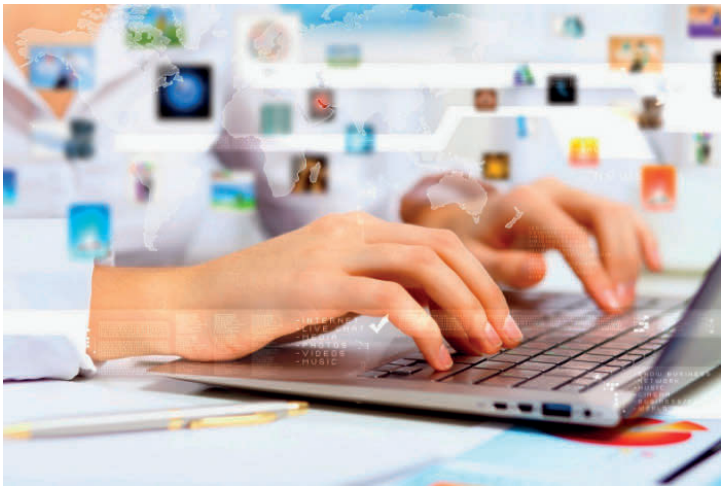
DID YOU KNOW?

Revenue management had focused on driving revenue from business to consumer (B2C) relationships. In the early 1990s UPS developed revenue management further by revitalizing their business to business (B2B) pricing strategy.

Revenue management is the practice of maximizing a company's revenues while selling the same amount of products or services. Also called yield management, some consider it both an art and a science. It employs a mix of pricing strategies and systems to maximize yield. Industries that have products or services that expire such as hotel rooms, banquet halls and meeting rooms in the hotel industry and airplane seats in the airline industry utilize the term "revenue management" most often.

4.4.1 The Importance of Revenue Management

All industries are competitive but some industries are more competitive than others. Those industries with high fixed costs must cover those expenses no matter how lean the companies within the market make themselves. Revenue management employs a revenue optimization methodology that helps companies in certain industries exploit their industry's characteristics to drive additional revenue and higher profitability.



Attributes

Companies that combine a perishable inventory and a fixed capacity typically use revenue management. *For example*, a hotel has a set number of hotel rooms available and fixed costs that apply whether they are filled or not. In addition, companies with low variable costs but high fixed costs that market to customers who discriminate on price often find this approach useful. With price discrimination some customers seek low cost and minimal service while others will readily pay more for a higher service or convenience level. The car rental industry, vacation package and tour providers, television broadcasters and freight industries all possess these attributes.

Revenue Increase

Revenue management leads to innovation in both the creation of new products and services and their pricing. This innovation leads to increases in revenue from sources companies may not have previously explored. Revenue management typically accounts for three to six percent of a hotel's revenue, although some hotels experience a much higher impact.

Focus

Revenue management, at its best, is an operating methodology that focuses each group or department within a company on the actions they need to take to increase profitability. A company that can embed this perspective in its culture will likely reap the benefits, including a greater impact on revenues and margins. Computer information systems can help companies implement revenue management processes and procedures but these tools assist, not drive.

Metrics

In order to reap the full benefits of revenue management, a company must measure a number of variables. These metrics depend on the industry, but in any case should indicate how well a company uses revenue management to impact the bottom line. A culture of measuring, comparing and making adjustments spills over to other aspects of the business, which makes the overall company more efficient, driving down costs and increasing profitability.

4.4.2 Process of Revenue Management

Revenue management, also known as yield management, is defined as the system of understanding and anticipating the actions of customers to increase revenue and make the most out of company profits. Although this is typically something that all businesses strive to do, revenue management focuses primarily on industries with certain types of resources, such as the hotel industry or airline industry. The benefits of revenue management include a better ability to predict customer wants and needs, a more effective pricing strategy, an expansion of available markets and a stronger relationship between the company divisions.

Customer Expectations

Revenue management provides companies with a better understanding of what their customers expect in the company's product. The research involved with revenue management gives companies insight into the specific wants and needs of their customers, and enables the company to shape the product and its presentation more effectively. For instance, a hotel chain working on revenue management might discover that their customers are typically business travelers who need easy access to the Internet. As a result, the hotel chain might incorporate a policy providing free wireless internet in all hotel rooms.

Competitive Pricing

Revenue management enables the company to create a competitive pricing strategy that will draw in customers and give the company an edge over its competitors. In fact, revenue management is so pervasive within certain industries that companies failing to implement revenue management strategies are unable to continue competing effectively within the marketplace. *For example*, an airline might complete research that shows customers who would otherwise be willing to fly are struggling with high prices and extra fees. As a result, the airline can boost its competitive advantage by lowering prices on certain flights or even by eliminating the baggage fees.

Market Segments

Revenue management seeks to show the company the full extent of its market segment and to introduce the company to new market segments that are available. Companies that usually focus on a certain market segment might need to expand their focus to continue growing in the industry. For instance, a hotel chain that focuses primarily of business travelers might realize that many of its chain locations are in destinations that have become popular family vacation spots. As a result, the hotel chain can begin advertising to family travelers and making any necessary adjustments in the chain locations, such as larger breakfast offering or play areas for children, to encourage business from this market segment.

Company Divisions

Revenue management creates a strong awareness between the activities of different company divisions, and particularly the activities of those working on sales and marketing, and those on the front line of service. Sales and marketing representatives must develop programs to reach out to customers, but it is the service representatives on the frontline who are responsible for carrying out many of these programs. Revenue management provides companies with the opportunity to coordinate their divisions more closely and thus create the most effective programs possible.

4.4.3 Revenue Management Skills

Yield or revenue managers work to ensure that rooms, seats or units are rented at the best price in industries where profit is derived from capacity. *For example*, hotel, car rental, airline and other tourism industries often hire revenue managers. Revenue managers are often in charge of monitoring an organization's accounting department while creating financial projections, determining if discounts should be offered, and keeping track of sales and reservations. To be competent, revenue managers need not only accounting skills but also industry analysis and technology skills.

Accounting and Finance Skills

Because the bulk of a revenue manager's job is to oversee an organization's financial operations, accounting and financial skills are among the most important job requirements of a revenue manager. In fact, hotels often require their lodging managers to have degrees in accounting. Revenue managers must be able to not only track a travel organization's income and expenses but also project how those numbers might change based on the season, local events and partnerships with third-party travel companies. Revenue managers must often calculate the lowest cost that a company could get for

a seat or a room and still make a profit. They must then make sure that promotions, discounts and partnerships with third parties are still profitable.

Technology Skills

According to Hotels, revenue managers need to be able to learn software programs such as revenue management systems. As reservations for hotel rooms, rental cars and airline tickets are now often made online, revenue managers need to understand how to pull data from these systems. Revenue managers who move to other companies likely have to learn new systems, so they should be able to understand and interact with new technologies relatively quickly. Revenue managers must also know how to compile spreadsheets and financial reports to convey information to corporate or general management.

Industry Analysis Skills

One of the revenue manager's primary duties is to predict. Revenue managers must predict what luxuries customers will pay for, how competitors will try to draw customers away and what changes in the industry will affect the organization's financial operations. According to Hospitality Valuation Services, this means revenue managers must be able to read and analyze industry reports. In addition, revenue managers must be able to synthesize these reports with in-house data, information about competitors and forecasted world events to draw conclusions about what their organizations can do to increase revenue. *For example*, a rental car revenue manager has to determine what effect an expected hike in fuel prices would have on the number of people renting cars instead of taking public transportation at a tourist destination.

Communication Skills

Although a large portion of the revenue manager's job is crunching numbers, an equally large part of her job is communicating with others about those numbers. Revenue managers must prepare reports and memos with financial information that clearly communicates the organization's financial status. These managers must also write recommendations and prepare to defend those recommendations in speech and in writing. As part of a company's management staff, revenue managers must be prepared to discuss plans and problems at management meetings by listening and responding to other managers' ideas.

4.4.4 Revenue Management Analysis

Revenue management is a methodology used by companies in certain industries, particularly those with fixed costs and capacity and products or services that expire. This

includes the hospitality industry and event-related retailing industry. Companies use revenue management and analyze the associated techniques and data to determine opportunities and areas to create additional revenue and drive higher profits. By doing this, companies can strengthen their financials and distance themselves from competitors.

Revenue management is defined as the operational procedures and practices that maximize revenues without creating additional products or services. *For example*, hotels sell the same suites and rooms but package them differently or sell them at different price points. Some industries refer to revenue management as yield management. Because it uses a mixture of pricing systems, strategies and quantitative and qualitative analysis to maximize **revenues**, many think of revenue management as both science and art.

Revenue is the income that a business has from its normal business activities, usually from the sale of goods and services to customers.

Price Discrimination

Companies that use revenue management generally have customers who discriminate on price. *For example*, a leisure traveler is typically willing to pay a much lower price for airfare and hotel than a business traveler. To determine the price points for these distinctly different customers requires a significant level of analysis. Companies must determine their assessment criteria and the proper way to measure the criteria, then install tracking systems and procedures.

Data Analysis

Companies analyze the pricing-related data they collect to detect trends that may vary by season, time of day, time of week and events. This analysis helps companies decide what pricing changes to make and what services to provide at each price. Companies also use the insights provided by analysis to determine how to advertise those pricing and service distinctions to their various customer groups.

Measurement

Companies also measure a number of non-pricing-related variables. These variables vary by industry and range from number of days before an event to location to length of stay.

Measurement is critical to analysis and goal achievement. Without properly identifying what variables affect the company and measuring those variables, a company ends up guessing. Companies that move from "guessing" to measurement often find that their assumptions were wrong. Specifying clear objectives, then measuring and analyzing, helps companies realize they reached a goal.

Cultural Changes

A culture of analysis and adjustments based on that analysis impacts other aspects of a company's business operations. By identifying areas to change, then driving revenues and increasing margins, companies increase productivity and profitability. This focus also helps owners and managers drive down overall costs, further increasing efficiency and profitability. In addition, through analysis and subsequent brainstorming, revenue management often drives innovation.

4.4.5 What Does a Revenue Analyst Do?

A revenue analyst is a person who monitors and analyzes a company's revenue with the intention of increasing profits. These individuals usually have a degree in economics, accounting or a related field. To be successful at this career, it helps to be organized and skilled at math. While the type of company that a revenue analyst works for can vary, his responsibilities are much the same. These include keeping track of revenue, preparing financial reports, monitoring the economy, developing revenue improvement plans and communicating with other departments.

One of the most essential duties of a revenue analyst is keeping track of company revenue. *For example*, if he is working for a manufacturing company, he might keep tabs on all the earnings that products have brought in. He may also monitor all expenses that the company has on a monthly and yearly basis. As he uncovers information, he will usually compare it with revenue data from previous periods to determine how well or poorly his company is performing. Being consistently accurate in this task is important, so he must keep mistakes to a minimum.

Regularly preparing financial reports is another part of this job. In most cases, a revenue analyst will have to prepare quarterly and yearly reports. To ensure the accuracy of these reports, he will usually need to check them against each daily revenue summary. Having this information is necessary for company audits.

Monitoring the economy and being aware of trends is also important. Since the economy is in constant flux, it's important for a revenue analyst to stay on top of trends. Doing so will help his company make the proper adjustments to take advantage of favorable economic conditions and stay afloat during unstable times. This aspect of the job involves performing consistent economic research and being able think ahead.

Along with this, it's up to him to develop revenue improvement plans. Since he is the economic expert, it's often his responsibility to come up with strategies to boost revenue. *For example*, he might suggest implementing changes to company policy or experimenting with new marketing techniques. To be effective, an individual should be able to think outside the box.

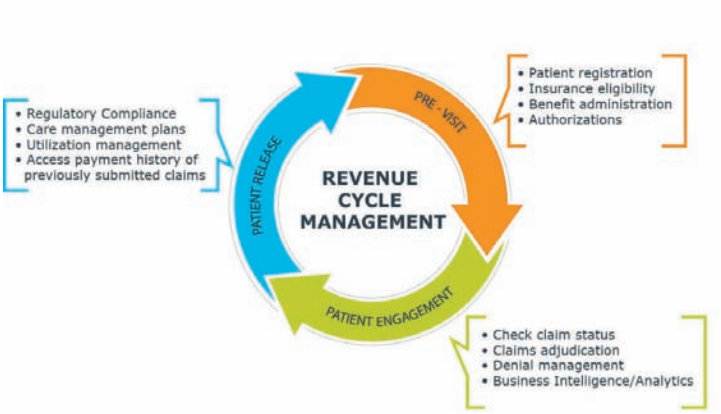
KEYWORD

Skill is learning to carry out a task with pre-determined results often within a given amount of time, energy, or both.

Additionally, a revenue analyst will usually communicate with other departments on a regular basis. In smaller companies, this might occur through one-on-one interactions, while in larger companies there may be weekly meetings with presentations concerning the company's financial situation. During this time, the analyst will typically present his findings and make suggestions for improvement. This aspect of the job requires a person with excellent interpersonal **skills**.

4.4.6 Purpose of a Revenue Cycle Management Team

In the global marketplace, making money may no longer be the sole purpose of the competitive battle. A business must implement specific policies to generate revenue but also find ways to hold onto cash or gain market share. Establishing a revenue cycle management team is one step toward assuring cash generation and competitive expansion.



Revenue Cycle

A company's revenue cycle runs through all processes and mechanisms the organization sets to make money attract customers make sure clients send remittances on time and prevent the adverse specter of credit risk and bad debt. The cycle enables top leadership to consider the narrow problem of profitability management from various perspectives. *For example*, senior executives may review profitability trends from a revenue-growth standpoint or through the lens of expense management, market share gain and customer attrition prevention.

Team

Corporate personnel who work in the revenue cycle hail from various departments, although specific business units represent the bulk of the contingent. Segments such as accounts receivable and sales help a company find effective ways to spur sales without sacrificing product quality. Personnel from marketing, revenue management and accounting also weigh in on revenue cycle management discussions, plotting tactics to identify and exploit competitors' strategic weaknesses.

Purpose

The primary purpose of a company's revenue cycle management team is helping the business make money, hold onto it as long as strategically convenient and avoid high levels of outright write-offs and bad debt. This is the operating loss arising from a customer's inability to remit funds after receiving goods. Employees working in the revenue cycle management also determine how an organization can effectively improve the bottom line, advising product managers on pricing strategies and telling them whether to raise item tags or keep them constant.

Strategic Relevance

By implementing a revenue administration group, a company takes the necessary steps to foster profitability and expand the way employees think of revenue administration. The goal is not to limit the conceptual space that personnel explore with respect to sales growth but to give them free rein to come up with various answers or outcomes about the need to expand sales.

4.4.7 Yield Management

Yield management is a process by which an organization analyzes and forecasts customer behavior in order to determine the best way to increase profitability by minimizing the waste of perishable resources. It is also known as revenue management. Yield management is used most frequently in the hotel and airline industries in order to maximize profitability on available seats and rooms. The process involves cultivating an understanding of potential and existing customers, timing and pricing promotional efforts correctly, and anticipating changes in the market.

In order to be successful, a yield management process must take into consideration finances, marketing, and business operations. These elements combined will typically provide a clear picture of what an organization has to offer and what is needed in the marketplace. It will also help the organization to determine at what price certain services will be offered to certain types of customers and when specific promotions should be launched.

Information collected for yield management can include statistics, financial results and forecasts, and data about competitors. It may also include surveys or studies of customer behavior. Most yield management programs will include examination of buying patterns as it pertains to the offerings of the organization and to the broader industry as a whole. A review of past customer service interactions and issues can also provide guidance as to what combination of elements would best maximize profits.

Yield management works under the principle of shifting values for products. The goal is to get the maximum value out of each available entity at any time. This typically results in a range of prices for each product, depending on market conditions and the behavior of different groups of customers. *For example*, hotels and airplane seats are at a premium in the summer months and during holidays, but may be reduced in the off-season in order to attract customers that would otherwise not purchase at all.

The process of yield management involves not only choosing the correct elements, but also combining them in the most beneficial way. For this reason, there are numerous ways in which timing, price, the customer type targeted, and specific products offered can be combined. Many organizations will regularly shift variables in an attempt to determine the optimum mix of elements at any given time. This is particularly important to manage in the face of unpredictable world or organizational events that can affect sales on a temporary or permanent level.

SUMMARY

- A distribution channel is the chain of businesses or intermediaries through which a good or service passes until it reaches the end consumer
- A customer service strategy is an important part of any business plan.
- A customer care strategy plays an important role in building customer satisfaction, helping you to retain loyal customers and increase levels of repeat business.
- Human resources intervention through counseling, training and mediation can help improve overall service levels and elevate the image of the business.
- Revenue management, also known as yield management, is a process for capacity-constrained industries to maximize profitability by allocating the right inventory to the right customers at the right price

KNOWLEDGE CHECK

1. Strategy of distribution in which seller allow certain outlets to sell its product is classified as

a. Exclusive distribution
b. Inclusive distribution
c. Selective distribution
d. Intensive distribution

2. Distribution strategy in which company limits its outlets in different regions or buyer can buy in only company's territory is classified as

a. Intensive territorial agreement
b. Selective territorial agreement
c. Inclusive territorial agreement
d. Exclusive territorial agreement

3. Strategy of distribution in which seller limits its dealers to not to sell any competitors products is classified as

a. exclusive distribution
b. exclusive dealing
c. inclusive distribution
d. intensive distribution

4. System which calls for managing, motivating, selecting and evaluating performance of marketing channels over time is called

a. vertical management

b. horizontal management
c. marketing channel management
d. distribution management

5. Marketing channel that involves no intermediaries to made their products available to final buyers is classified as

a. Direct channel
b. Indirect channel
c. Flexible channel
d. Static channel

REVIEW QUESTIONS

1. What is customer service? Explain its characteristics.
2. Describe the revenue management and its importance.
3. Explain the revenue management analysis.
4. What Does a Revenue Analyst Do?
5. Write the short note on:
   a. Customer Feedback
   b. Cost of Services

CHECK YOUR RESULT

1. (a) 2. (d) 3. (b) 4. (c) 5. (a)

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CHAPTER

5

PURCHASING MANAGEMENT

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

1. Describe the basic concept of purchasing management
2. Understand by roles of a purchasing department
3. Explain the purchasing organization structure

INTRODUCTION

Purchasing is the organized acquisition of goods and services on behalf of the buying entity. Purchasing activities are needed to ensure that needed items are obtained in a timely manner and at a reasonable cost. A purchasing department is especially necessary in a manufacturing business, where large amounts of raw materials and components must be obtained on a recurring basis.

The purchasing department's primary goals are as follows:

- To locate suppliers that can provide goods and services in accordance with the buyer's requirements.

- To buy items that meet the quality specifications of the buyer.
- To create a stream of deliveries into the buyer's premises that minimize the raw materials inventory investment while still ensuring that goods are available as needed.

Purchasing management is a department in an organization responsible for purchasing activities. Purchase is most important function in any organization. Purchase is the first element which affects the product cost. Purchase management decides profitability of the Company.

5.1 BASIC CONCEPT OF PURCHASING MANAGEMENT

Purchasing management directs the flow of goods and services in a company and handles all data relating to contact with suppliers. To be effective, it requires knowledge of the supply chain, business and tax laws, invoice and inventory procedures, and transportation and logistics issues. Although a strong knowledge of the products and services to be purchased is essential, professionals in this field must also be able to plan, execute, and oversee purchasing strategies that help their company be more profitable.

Sourcing reliable suppliers is a crucial part of purchasing management. Managers, agents, and buyers usually learn about new products and services from Internet searches, trade shows, and conferences. They meet with potential suppliers in their plants whenever possible. Skills in foreign languages may be helpful for sourcing suppliers in other countries. Individuals who work in this area must always assess potential suppliers in terms of the supplier's ability to deliver quality merchandise at a suitable price and on time.

Purchasing management professionals must be good negotiators, understand technical product information, have good mathematical ability, understand spreadsheet software, understand marketing methodology, and be outstanding decision makers. To get ahead in this field requires good leadership skills, and higher positions often require a master's degree in a business related subject. Entry level positions, such as junior buyers, assistant buyers, and purchasing clerks, often require a college degree and some product knowledge.

Larger distributors may require a bachelor's degree for entry level jobs in this field. Employees typically being their training and learning in sales, then supervision and invoice and stock monitoring. Professional designations include Certified Purchasing Professional (CPP) in the United States, and Certified Professional Purchaser (CPP) in Canada.

Purchasing managers, buyers, and materials managers control budgets, manage staff, and may analyze procurement methods as well as negotiate supplier contracts. These professionals must understand tax laws, purchasing trends, ethics, and global

outsourcing issues. Buyers and purchasing agents usually deal specifically with purchasing tasks, while managers usually supervise others, including purchasing agents. Titles and duties vary greatly between industries and employers, however.

Buyers need the ability to select products that consumers will want to buy, so they need to understand trends as well as economic conditions that affect consumer buying decisions. Those employed in small stores may be responsible for purchasing the store's entire inventory, while people working for larger operations may focus on a few product lines.

Merchandise managers may work with an advertising team to create a campaign for the goods they purchase. Follow up is an important part of this job, as responsibility does not end in purchasing goods.

Managers need to check to be sure the products they buy are being displayed well to attract consumers. Buyers must keep track of customer demands for new products as well as determine how well goods are selling.

Common purchasing activities are as follows:

- Receive and verify purchase requisitions from around the company.
- Search for qualified suppliers that can fulfill the buyer's needs.
- Prepare and issue **request for proposal** (RFP) documents to qualified suppliers.
- Evaluate supplier responses to RFPs, select a winner, and negotiate a contract.
- Issue purchase orders to suppliers that authorize purchases. A master purchase order may be issued when there are a number of deliveries contemplated under a purchasing arrangement.
- Administer contracts that have a longer duration.
- Review open purchase orders to see if any should be closed.

Request for proposal *i*s a document that solicits proposal, often made through a bidding process, by an agency or company interested in procurement of a commodity, service or valuable asset, to potential suppliers to submit business proposals

There is a tendency for the purchasing function to be bogged down in paperwork, which is related to the excessive

use of bidding procedures and the issuance of purchase orders. The function can be streamlined by replacing bidding with sole source arrangements for most purchases. Also, lower-cost purchases are now made with procurement cards, thereby avoiding the use of purchase orders.

The purchasing department may operate a freestanding purchasing software package, though the system is more effective if integrated into the software of the receiving and accounts payable functions.

Purchasing Managers, Buyers, and Purchasing Agents

An accurate flow between these groups is an important task that must be handled carefully, since money is the strongest link in the business chain.

Purchasing manager is the primary individual responsible for buying materials, parts, supplies, products and services necessary to manufacture a specific product or sell an item produced by the parent company or subsidiary. He or she should be organized, detail oriented, have an understanding of basic accounting practices and inventory management.

The purchasing manager must retain good relationships with vendors, work closely with accounting, credit, and shipping and receiving departments to insure all that the flow of purchase to inventory runs without issues. These responsibilities must be held with the utmost seriousness since errors in this area can affect the entire financial balance of a business.

A good purchasing manager must first establish a beneficial working relationship with its vendors. Negotiating for the best pricing structure, the guarantee of acceptable availability and dependable shipping times insure that the inventory is maintained and the productivity is stable. An undependable vendor can cause delays in production, lost sales and even financial instability if allowed to continue in the relationship without strong guidelines being set by the manager. Communication and organization work hand in hand to help the purchasing agent establish a stock forecast and keep ordering at a reasonable level.

The **accounting** department, which includes accounts receivable, accounts payable, and credit, must also work closely with the purchasing manager to determine how much money is allocated to inventory and periodic purchases, how quickly invoices are paid, and how accurately the invoices

are when received. In this area, the purchaser needs to be an excellent record keeper and have an understanding of how the accounting department's system works.

Lastly, having a grasp of the company inventory and how the shipping and receiving departments function daily will prove to complete your foundation successfully. When a company has a detailed oriented and organized shipping department, the purchasing manager can feel confident that the items ordered will reach the dock, be inspected, and moved into inventory with limited problems. Having a team of individuals of like mind will act as quality assurance for whatever enters your inventory. The purchasing manager wears many hats within a company but if focused can accomplish the ultimate goal of any company-to be productive and highly profitable.

Accounting is the measurement, processing and communication of financial information about economic entities such as businesses and corporations

A buyer's market is a situation in which supply exceeds demand, giving purchasers an advantage over sellers in price negotiations. The term "buyer's market" is commonly used to describe real estate markets, but it applies to any type of market in which there is more product available than there are people who want to buy it. The opposite of a buyer's market is a seller's market, a situation in which demand exceeds supply and owners have an advantage over buyers in price negotiations.

Purchasing agents, also known as buyers, generally work in the purchasing departments of large companies or governmental entities. Centralizing many of the organization's buying functions saves money and creates a fair process to assess proposals from various suppliers and sales representatives. Selling to a purchasing agent may be different than to your other clients who do not employ that position. Dealing with agents, who can be aggressive and difficult to contact, requires special considerations, especially for smaller companies facing competition from big businesses.

Request for Proposal

Before a purchasing agent buys from a supplier, a request for proposal may be distributed to several companies that carry the required item. The RFP specifies all documents needed, along with pricing, for a company to be considered as a vendor.

Each organization may have different requirements, but you will likely need to submit specifications of the product or service, a time line for delivery and information about your company. Do not make exaggerated claims about your item or the ability of your business to supply it on a large scale. If you have doubts about meeting the requirements, it is best to wait for an RFP that you can fulfill.

Communication

Building relationships is part of the selling process. With most contacts, sales representatives become acquainted with them on a professional and personal level. This helps in matching a product with the customer's needs. Even though it may not be a simple task, attempt to contact the purchasing agent directly. If you are successful in obtaining a phone number or email address, introduce yourself and ask pertinent questions about the organization. Inquire about details that may not have been specified on the RFP. After you submit your proposal, contact the buyer again to keep updated on the progress of choosing a vendor and to answer any questions.

Procedures

Proposal is a written offer from a seller to a prospective buyer. Business proposals are often a key step in the complex sales process—i.e., whenever a buyer considers more than price in a purchase.

Submit the necessary paperwork and pricing as directed by the purchasing department, agent or request for **proposal**. Reject the notion that you might win the bid without providing all requested documents. If you are familiar with an employee outside of the purchasing department, do not ask that person to intervene on your behalf, as it may not always work in your favor. Purchasing agents do what's best for their companies and work independently, though they may confer with other employees.

Negotiations

The price of your product or service in comparison to competitors is important in determining whether you will win the bid. Just as vital, however, is the quality and benefit of your product. Emphasizing how your item is superior to others and how your company will provide excellent customer service makes the purchasing agent take notice. If your product contains specialized features needed by the organization, you

may be contacted by the purchasing agent to negotiate your price down to match the lowest bid from a substandard supplier. Do not undersell yourself in the hope of future business that may never materialize. There is value in what you offer, so reduce your price only to the extent that you will continue to make a profit and be able to serve your customer at the best of your ability.

The Objectives for Purchasing in Manufacturing

The manufacturing process depends on raw materials, as well as supplies. In a small business, your need to keep costs down may always seem to be at war with your need to produce the best quality. You can balance these needs by creating objectives for the person in charge of your purchasing. Setting objectives allows you to think through your company's needs while keeping an eye on expenditures.

Alignment with Objectives

Purchasing must conform to company strategy. *For example*, you may have decided that your marketing department must explore a new region and offer specific products to customers in that region. Your purchasing manager must increase the raw materials and supplies that are necessary to manufacturing that specific product. Similarly, if you decide to phase out a product, your purchasing agent must gradually reduce the orders for materials and supplies for that product. In a small business, these kinds of changes can represent a high percentage of your overall marketing strategies. That means whoever is doing your purchasing can make a big difference in what you spend and how well focused you are. If your business is so small that the person in charge of purchasing has other duties and does purchasing part-time, make sure she understands the importance of changing purchasing to match strategy.

Replacing Obsolete Stock

The person in charge of purchasing must constantly monitor inventory losses due to damage, deterioration or outdated features. The materials that go into your manufactured products must be of sufficient quality to provide you with a finished item that is free of defects and is up to current standards. The purchasing manager sets an objective of reviewing inventory and keeping up with improvements to make sure you are using the best materials available. For a small business, this kind of attention to quality can give you a competitive edge over larger companies who may be slow to upgrade inventory.

Master Agreements

Your purchasing representative can set an objective of securing master agreements with suppliers. These agreements ensure the delivery of routine orders without having to reorder. Having a master agreement in place can free the purchasing agent to pay

attention to less routine matters, and ensure that you are always supplied with the minimum amount of materials you need. This can be crucial if your purchasing is assigned to an employee part-time. The master agreement will help that employee manage that process. Your buyer should also set an objective of periodically reviewing master agreements to make sure they match your current needs and offer the best prices.

Value vs Cost

The goal of purchasing is not always finding the lowest possible price. A buyer must keep an eye on value. This means appraising materials and supplies according to how much is actually useful. Paying low prices for supplies you throw out is not a way to save money. The purchasing agent must analyze how much you spend and how much profit you realize from your purchases to make sure you get a good value. In addition, you may want to pay a premium for materials that are superior and provide you with a better product you can charge more money for when you sell it. This attention to value can give a small business the advantage over large companies that may focus more on cost-cutting.

5.1.1 Purchase Order

Purchase orders (POs) are documents of authorization that are issued by a buyer and extended to a seller. Their main function is to specify the terms of purchase that will exist between the two entities, at least in regard to all purchasing activity specified in the document. This form of sales order may be used to authorize a one-time purchase, or provide the means for establishing and governing a series of purchases over an extended period of time, usually one calendar year.

Before a purchase order is produced, many businesses make use of an internal document that is known either as a purchase requisition or simply a requisition. A department or other entity within the company structure submits a request for the purchase of specified goods or services using this document. The requisition usually carries a specific identification number, making it relatively easy for the purchasing department to keep track of whether or not the request has been approved, denied, or is still under consideration. In the event that the appropriate purchasing agent approves the requisition, a purchase order is issued to determine the terms and conditions under which the purchase is made. This often involves identifying the vendor who will fill the order, the unit price for the goods or services provided, and the total purchase price. Often, vendors include the order number on the invoice for the filled order, making it easy for accounts payable to process the invoice and apply the charges to the department that originally requested the order.

Along with use in evaluating and approving requested purchases on a one-time basis, this document can also be used to authorize several purchases over a specified period of time. This is often referred to as a blanket PO or blanket order.

For example, if a department within a given company wished to use audio conferencing over the course of the business year, it would submit a requisition to the purchasing area that covered the number of call minutes needed to successfully hold those conferences for that entire year. The purchasing department then seeks to secure a vendor that will provide the service at a reasonable per minute/per line rate. Once the vendor is identified and approved, the purchasing agent issues an order to that vendor, who in turn tracks the minutes used and makes sure the blanket PO number is referenced on each invoice issued to the customer throughout the year.

While larger corporations more often use both a requisition form and a purchase order to keep track of its ordering activity, smaller companies sometimes combine the two documents, effectively using the same identification number for requesting the purchase of items and approving that request. At times, the decision to use a single document or both documents has to do with complying with governmental regulations as well as maintaining a comprehensive internal history. As long as the documentation used creates a consistent and accurate record of the transactions, and provides the company with the detail it needs, either approach will work.

The four main types of purchase orders

There are the four main types of purchase orders, such as:

- *Standard purchase orders:* a standard purchase order is typically used for irregular, infrequent or one-off procurement. As mentioned above, it contains a complete specification of the purchase, setting out the price, quantity and timeframes for payment and delivery. A restaurant might raise a standard purchase order when it purchases new tables and chairs. If all goes well, this should be a one-off purchase for the restaurant, and the contract will be fulfilled once the chairs are delivered in good order.
- *Planned purchase orders:* like a standard purchase order, a planned purchase order is relatively comprehensive. A planned purchase order requires full details of the goods and services to be purchased, and their costs. Dates for payment and delivery are also included in a planned purchase order, but these are treated as tentative dates. Issuing a release against the planned purchase order places individual orders.

  For example, a restaurant might require 50,000 disposable place mats in one year – the manager could create a planned purchase order with a commercial printer detailing the price and quantity with a tentative delivery schedule. After using the first 5,000 place mats, the restaurant would create a release against the purchase order to order more.
- *Blanket purchase orders:* When balancing administrative costs against the need for quick and consistent deliveries of goods or services, blanket purchase

orders provide a welcome advantage to the owner of a small business. If properly executed, a blanket purchase order saves both the buyer and seller a considerable amount of time and money.

- *Convenience:* Although the mechanics of a blanket purchase can vary, the theory behind them is always the same. The goal is to create a standing purchase order with predetermined terms and conditions that will save administrative time for buyers and sellers who wish to do an extended amount of business together over a period of time and within certain limits. The main components are a period of performance and some type of limitation on quantity or dollar amounts expended.
- *Material and Supply Orders:* A common type of blanket purchase order sets up pre-negotiated line items for specific materials or supplies consumed on a frequent basis. For instance, if a business purchases many paper towels and garbage bags from the same company throughout the year, a purchase order with two line items is pre-established at an agreed unit price for each item, and with a limit on how many units can be bought or dollars can be expended for each line item within a year. When goods are needed, the supplier only needs to deliver; the buyer receives the units and pays upon receipt. The contract is typically negotiated to end when the line items, dollar values or time limits have been reached.
- *Service Orders:* Blanket purchase orders can also be created for services rendered. If frequent maintenance or repairs are required, *for example*, pre-established prices can be negotiated for each type of service much like a blanket purchase order for materials or supplies. Payment is made upon signature approval from an authorized employee at the purchase location to confirm that the services were rendered complete as outlined in the blanket agreement.
- *Limit of Liability Orders:* Another type of blanket purchase order can be executed based on a specific time frame and dollar limit of liability, but without detailed line items. These types of agreements are helpful when reserving a limited budget for consulting services for a specific project within a given time frame. *For example*, if the total budget for a report writing project was $10,000, the buyer would create a single-line-item purchase order with a quantity of 10,000 units at $1 per unit for a total of $10,000 to be executed within a one-year period. The quantity would represent the dollar values to be spent on various portions of report writing as later defined during the year, agreed to by both parties and then delivered in $1 increments. If the first was report defined, written, and delivered with an agreed-upon cost of $2,000, the buyer would receive a quantity of 2,000 units at $1 per unit for a total of $2,000 payable to the consultant. The remaining value on the purchase order would then be $8,000. Subsequent reports would be defined, written, delivered, and paid in

the same manner until the total budget of $10,000 was consumed from the purchase order.

- *Contract purchase orders:* a contract purchase order sets out the vendor's details and potentially also payment and delivery terms. The products to be purchased are not specified. A contract purchase order is used to create an agreement and terms of supply between a purchaser and vendor as the basis for an ongoing commercial relationship. To order a product, the purchaser may refer to the contract purchase order when raising a standard purchase order.

5.1.2 Methods of Purchasing

Some of the methods of purchasing are discussed as follows:

Purchasing department must be in knowledge of the suppliers of such goods so that these are purchased without loss of time.

Purchasing by Requirement

This method refers to those goods which are purchased only when needed and in required quantity. The goods which are not regularly required are purchased in this way. On the other hand it refers to the purchase of emergency goods. These goods are not kept in store.

Market Purchasing

Market purchasing refers to buying goods for taking advantages of favorable market situations. Purchases are not made to meet immediate needs but are acquired as per the future requirements. This method will be useful if future needs are estimated accurately and purchases are made whenever favorable market situations arise. The market situation is constantly studied for forecasting price trends.

The advantages of this method are: lower purchase prices, more margin on finished products due to lower material cost and saving in purchase expenses. This method suffers from some limitations: losses in case of wrong judgment, fear of obsolescence, higher storing expenses due to more purchases.

Speculative Purchasing

Speculative purchasing refers to purchases at lower prices with a view to sell them at higher prices in future. The attention in this method is to earn profits out of price rises later on. The purchases are not made as per the production needs of the plant rather these are far in excess of such requirements. A cloth mill may purchase cotton in the market when prices are low with the attention of earning profits out of its sales when prices go up.

The former is done to earn profits out of future price rises whereas the latter is concerned with purchasing for own needs when favorable market situations exist. Though speculative purchasing may result in profits but there are chances of prices going down in future, fear of obsolescence and incurring higher storage costs.

Purchasing for Specific Future Period

This method is used for the purchase of those goods which are regularly required. These goods are needed in small quantity and chances of price fluctuations are negligible. The needs for specific period are assessed and purchases made accordingly. The requirements for such purchases may be assessed on the basis of past experience, period for which supplies are needed, carrying cost of inventory etc.

Contract Purchasing

In the words of Spiegel it is "the purchasing under contract, usually formal, of needed materials, delivery of which is frequently spread over a period of time." Under this method a specific quantity of materials is contracted to be purchased and delivery is taken in future. Even though the goods are procured in future but the price and other terms and conditions are fixed at the time of contract. This method may be useful when price rises in future may be expected and material requirements for future may be accurately estimated.

Scheduled Purchasing

Under this method the suppliers are supplied a probable time schedule for material requirements so that they are in a position to arrange these in time. An accurate production schedule is prepared for estimating future material needs. The suppliers are informed of probable needs and orders are sent accordingly. The schedule provided by the purchaser to the vendor is not a contract. This is only a gentleman's agreement for terms and conditions of purchases. The main objectives of this method are: minimum inventory, prompt service low prices, quality goods etc.

Group Purchasing of Small Items

Sometimes a number of small items are required to be purchased. The prices of these items are so small that costs of placing orders may be more than prices. In such situations the buyer places order with a vendor for all these items. The purchase price is agreed to be by adding some percentage of profit in the dealer's cost. This method will be used only when dealer's records are open to inspection for determining his cost. This type of purchasing reduces the cost of the buyer by eliminating much clerical work.

Co-operative Purchasing

Small industrial units may join to pool their requirements and then place bulk orders with dealers. This will help them in availing rebates on large quantity purchases, cash discounts and savings in transportation costs. After receiving the materials these are divided among the member units. Co-operative purchasing helps small units in availing the benefits of bulk purchasing.

Speculative purchasing should not be confused with market purchasing.

5.2 ROLES OF A PURCHASING DEPARTMENT

Purchasing departments are responsible for procuring supplies. This largely involved order-placing and was primarily a clerical position. However, as the development of strategic planning and the advent of just-in-time purchasing made purchasing a more crucial business function. Today, purchasing is often referred to as "supply chain management" and the purchasing department has taken on a larger and more vital business role.

Supply Sourcing

One of the main roles of the purchasing department is to source supplies and parts, and then purchase them. In large companies, this may also include deciding whether to make the item in-house. Purchasing departments often work alongside product development teams to source materials and determine cost of the finished product. Purchasing departments may use trade publications to source suppliers, or go straight to

the manufacturer. Finding the correct item at the correct price can be difficult, and purchasing departments may also work to assist suppliers in manufacturing the item needed. This can involve providing considerable assistance to the supplier.

Bidding

For items needed in bulk, or specialist items, purchasing departments often use competitive bidding to chose a supplier. The department will then be responsible for all aspects of the bidding process. *For example*, when the purchasing department of the Port of Houston chooses a supplier, it publishes a public notice, writes detailed instructions on the bidding process, accepts companies onto the approved list of bidders, handles bid security money, opens and reads the bids publicly and makes a recommendation on which bid to accept.

Supplier Management

In addition to finding supplies and negotiating contracts for the supplies, purchasing departments are also responsible for monitoring the supplier's performance. Purchasing departments must evaluate the supplier's performance and quality control. This can include monitoring delivery times, quality, cost and performance. For suppliers in other countries, this can also mean monitoring working conditions and workers rights. Large firms and public organizations often certify suppliers once they are shown to meet performance targets. This may involve a training and education program, and detailed inspection of suppliers.

Cost Control

Purchasing departments, especially in government agencies, may also be responsible for maintaining strict cost control. *For example*, in a 2010 article on hotel purchasing specialist site Food Buyers Network, John Schalow suggests that to get the best price, purchasing departments need to ensure suppliers themselves get a lower cost from distributors and manufacturers. This can be done by increasing delivery size, paying on time, ordering online and making sure suppliers use the best practice.

Legal Controls

Purchasing departments must also be aware of the laws applying to purchasing. For private companies, this is primarily contract law, but for government bodies, there may be state and federal laws regulating purchasing.

For example, school district purchasing departments in Texas must know that it is a state criminal offense to avoid using competitive purchasing when it is required; and that while federal law requires a bidding process to be used for all child nutrition

purchases more than $100,000, Texas state law requires a bidding process for any purchase over $25,000.

5.2.1 Purchasing Process

The purchasing process for companies breaks down into eight clear steps. In the first step the company identifies a need, for which the answer is the purchase of a product. The final step is the execution of a purchase contract. The steps in between build an organized, informed process that results in the company purchasing the right product for the need from a qualified supplier whose product is the most durable for the price.

Identify Need

Identify the need for a product purchase. *For example*, a lawn company wants to offer mowing services to its clients. To do this it needs to purchase a mower. Thus, the need to make a purchase of a product, a mower, is identified.

Select Specific Product

Select a specific product to meet the need. *For example* the lawn company must select which type of mower from the many push and riding varieties on the market meets the company's need for a mower the best.

Appoint Purchase Team

Put a team together to manage the purchase process, including finalizing the list of required technical specifications for the product and the bid solicitation and award process.

Specify Technical Specifications

Arrive at a list of required technical specifications for the product to ensure it meets the company's needs.

Budget for Purchase

Establish a budget for the purchase relying on the range of prices identified by the research done in Step 3.

Research Potential Suppliers

Research the various product types that fit the need along with their suppliers to identify the most durable model at the best price. If the lawn company decides to

purchase a riding mower, research is conducted into which brand and manufacturer provides the most durable product for the price asked.

Solicit Bids

Solicit bids from the manufacturers and suppliers of the identified product that meets all the required technical specifications.

Award Contract

Select a supplier from the bids submitted and award the purchase contract.

5.2.2 Functions of a Purchasing Department in an Organization

Most major companies and even some government organizations have a purchasing or procurement department as part of everyday operations. These departments provide a service that is the backbone of many manufacturing, retail, military and other industrial organizations. Many individuals, even some who work for these companies, are unaware of what the purchasing department does, why it exists or what purposes it serves. To understand better what the role of the purchasing department is, consider some functions it performs.

Procuring Materials

One role of the purchasing department is to procure all necessary materials needed for production or daily operation of the company or government organization. For a manufacturing company, this might include raw materials such as iron, steel, aluminum or plastics, but it also might include tools, machinery, delivery trucks or even the office supplies needed for the secretaries and sales team. In a retail environment, the purchasing department makes sure there is always sufficient product on the shelves or in the warehouses to keep the customers happy and keep the store well-stocked. With a small business, it is especially important to keep inventory ordering at a reasonable level; investing large amounts of capital in excess stock could result in storage problems and in a shortage of capital for other expenditures such as advertising or research and development. Purchasing also oversees all of the vendors that supply a company with the items it needs to operate properly.

Evaluating Price

A purchasing department also is charged with continuously evaluating whether it is receiving these materials at the best possible price in order to maximize profitability. This can be challenging for a small business that may purchase in lesser quantities than a larger vendor and which thus may not receive the same type of bulk discounts.

A purchasing department in a small business needs to shop around to find the best vendors at the most reasonable prices for the company's particular size orders. Purchasing department staff may communicate with alternate vendors, negotiate better pricing for bulk orders or investigate the possibility of procuring cheaper materials from alternative sources as part of their daily activities.

Paperwork and Accounting

Purchasing departments handle all of the paperwork involved with purchasing and delivery of supplies and materials. Purchasing ensures timely delivery of materials from vendors, generates and tracks purchase orders and works alongside the receiving department and the accounts payable department to ensure that promised deliveries were received in full and are being paid for on time. In a small business, this means working closely with the accounting department to ensure that there is sufficient capital to buy the items purchased and that cash is flowing smoothly and all payments are made on time.

Policy Compliance

The purchasing department also must ensure that it is complying with all company policies. *For example*, in a small business, individual staff members may communicate with the purchasing department about purchasing needs for things such as office supplies or computers. Before making a purchase, the purchasing department must ensure that it heeds the proper protocols for purchase and budget approval and must ensure that any items are purchased in accordance with the overall purchasing policy of the organization.

5.2.3 Purchasing and Supply Management

Purchasing and supply management involves the procurement, storage, and monitoring of goods sold in a retail store, machinery, supplies, or other raw goods. The purchasing and supply manager is the person in charge of this division of this job, as well as in managing the other employees working in this section. For most businesses, specifically retailers, purchasing and supply management is one of the most important job descriptions in monitoring buyer behaviors and making sure top selling items are well-stocked.

In many cases, purchasing and supply management may involve negotiating with manufacturers or wholesalers in the process of buying goods or materials, as well as in working closely with cost analysts and marketing professionals in deciding which products to buy and which ones are not selling well enough for the costs. This process ensures that the company keeps better selling items in stock while passing on products that sit on store shelves collecting dust.

Inventory is also a big part of managing purchasing and supplies. At set intervals, inventory is taken at every warehouse or store, and those numbers are compared with how many of each unit was originally purchased. This gives managers and owners a way of gauging which items to purchase more of and which ones to scale back on.

The people in charge of purchasing and supply management must constantly research and learn consumer behaviors, as well as stay up-to-date on new and emerging products on the market. In order for a business to survive, it must offer the things consumers want to buy.

In many cases purchasing and supply management teams are made up of several key players. This team can include pricing analysts, market researchers and marketing personnel, managers over each of these departments, as well as store owners and supervisors. It is vitally important for each team member to compare notes and discuss buying and marketing strategies. In the case of retailers, they must also compare notes with the manufacturers or wholesalers purchasing team to get an idea of which items are being made and sold, and to whom.

The purchasing the supply management team must also come to buying agreements with suppliers of their products, about the prospect of returning merchandise should an item fail to sell.

For example, many publishing companies allow book sellers to return any unsold copies within six months. This acts as some level of protection on a company's investment. The purchasing and supply department must negotiate these terms before any inventory is paid for, as well as keep accurate records and inventory to comply with all agreement terms and conditions.

Since there are various job descriptions and responsibilities involved in purchasing and supply management, getting a job in this field may require one of several potential degrees, certificates, or experiences depending on which section one wishes to pursue.

Importance of Purchasing & Supply Management

Business professionals responsible for purchasing typically manage procuring raw materials, supplies and services. Managing the supply chain using involves negotiating the contracts required to support a company's production of products or services. The Institute of Supply Management provides resources, tips and tools for procurement professionals. It also offers certification programs that stress the importance of effective purchasing and supply management to an organization.

Producing Savings

Effective supply chain management depends on material availability, purchase volume, product cost and types of materials. Materials subject to shortages and price instability present more problems to procurement professionals. Even small reductions in material

costs in a company's total operating budget can impact the organization by increasing its profit margins. Purchasing and supply chain personnel must negotiate effectively to obtain materials of the highest quality at the lowest cost.

Managing Contracts Effectively

Purchasing professionals buy goods and services for resale, or purchase them to consume in the business or transform into products or services. Direct buying typically involves establishing a long-term contract between the buyer and supplier. Indirect buying involves transactions associated with repetitive purchases used in running the business. By defining the requirements for materials, analyzing the value and arranging the logistics and distribution, supply chain professionals ensure the long-term success of the entire business operation.

Maintaining Productive Supplier Relationships

Supporting a company's operations typically means providing a continuous flow of materials and services required for production. By buying competitively from diverse suppliers, purchasing professionals obtain the right amount of quality goods and services at the best price. Negotiating persuasively helps maximize the investment and establish lucrative working relationships with suppliers. By analyzing usage, purchasing professionals work with their suppliers to avoid duplication, errors and waste. Evaluating and certifying suppliers ensures that all purchases meet the established criteria on an ongoing basis.

Negotiating and Administering the Best Deals

Buyers in purchasing and supply management departments perform the critically important role of negotiating the best deals. Effective purchasing professionals must know what they are buying, how it will be used and the factors that affect quality, cost and delivery. Service and support needs must also be analyzed and discussed. By conducting thorough research and communicating effectively, purchasing professionals secure contracts that are mutually beneficial to both companies. These contribute to long-term, productive partnerships that are important to both entities.

5.2.4 Strategic Purchasing

Strategic purchasing is a methodology used in many businesses to realize the greatest amount of benefit to the company while still effectively managing the costs associated with the acquisition of raw materials and operational components. As opposed to tactical purchasing, which tends to see the purchasing process as somewhat distanced from other functions within the corporate structure, strategic purchasing attempts to

promote the most efficient use of all materials throughout the company. The goal of this type of purchasing is to increase the bottom line of the company through the most judicious use of purchasing approaches and strategies.

One of the ways that strategic purchasing takes place is through the analyzing how money is spent for purchases currently. The idea is to determine if there is any way to enhance the purchasing process through adjusting the guidelines associated with requisitioning materials or placing orders with suppliers. Often, this type of spend analysis will reveal one or two small ways to make the process more efficient and possibly save the company time and money.

Staying on top of current and projected needs is also part of strategic purchasing. *For example*, attention to the purchase of new software or computer equipment takes place long before the need becomes necessary. This allows the purchasing department to evaluate a number of options in advance and settle on the solution that is in the best interests of the company without having to make snap decisions at the last minute. This approach is particularly important if keeping up with the latest technology is crucial to the successful operation of the business.

Strategic purchasing also involves building rapport between purchasers and suppliers. Working together, it may be possible to streamline the advance time needed to process an order with the supplier, thus reducing the need to maintain a larger inventory. Depending on the volume of business done by the company with the supplier, it may also be possible to find ways to expedite delivery as well.

The use of strategic planning also means automating as much of the planning process as possible. Tasks that are routine can often be set up for completion by software or other automatic means. This frees purchasing agents to focus on other aspects of the purchasing process and thus increase the chances of using available resources with more efficiency.

In the end, this method is all about redefining buying habits, processes, and behaviors so that the company enjoys the most benefit. From this perspective, strategic purchasing is not an event, but an ongoing process that involves the interaction of purchasing professionals with suppliers, and the management arm of the corporation.

Strategic Purchasing Manager Job Description

A strategic purchasing manager is responsible for locating and maintaining the best sources of supply for the components, materials and services a company needs. While purchasing managers have traditionally focused on finding the lowest-cost suppliers, strategic purchasing managers consider all aspects of their relationship with suppliers, including quality, value and the ability to respond quickly to changing supply requirements. They aim to select suppliers that can act as long-term partners and help the company meet its growth objectives.

Skills

Strategic purchasing managers must have good analytical abilities to assess the performance of suppliers against criteria such as quality, cost, reliability, ability to innovate and financial stability. They need financial skills to assess the total cost of dealing with a supplier, including price and factors such as the costs of delivery, administration quality control and inventory. These managers must have good interpersonal and negotiating skills to build effective working relationships with supply partners.

Qualifications

A bachelor's degree in engineering, business or economics is essential for purchasing management positions, according to the U.S. Bureau of Labor Statistics. Candidates for senior purchasing positions in large organizations may need a master's degree. Strategic purchasing managers also must have previous experience in purchasing. Managers with purchasing experience can improve their career prospects by obtaining professional certification through accrediting organizations, such as the Institute for Supply Management or the American Purchasing Society. Certification develops skills such as finance, supplier relationship management and risk management.

Value

Strategic purchasing managers are responsible for obtaining the best supplies or services at the best value, according to the Administrative Services Transformation Project at the University of Michigan. They aim to achieve cost reductions while maintaining or improving the quality of supplies and services. These managers also consider other factors that add value. If a supplier offers access to technology or components that can help a company develop new products or improve existing products, that supplier provides added value to the company.

Quality

Suppliers that offer quality components or materials can help a company to reduce its costs and improve its own quality.

DID YOU KNOW?

In the manufacturing industry, it is commonly stated that "Quality drives productivity." Improved productivity is a source of greater revenues, employment opportunities and technological advances. However, this has not been the case historically, and in the early 19th century it was recognized that some markets, such as those in Asia, preferred cheaper products to those of quality

This, in turn, improves the company's competitive position in the marketplace. Strategic purchasing managers therefore assess suppliers' quality standards and encourage suppliers to integrate their standards with those of the purchasing company. They also work with quality managers in both organizations to set up continuous improvement programs.

Contracts

Strategic purchasing managers identify the suppliers that are most important to the success of the company and negotiate long-term contracts that set out prices, quality standards, cost-reduction targets, delivery timescales, and commercial terms and conditions. They monitor the performance of suppliers against contractual standards and work with them to achieve continuous improvements in costs and performance. In addition to their strategic sourcing role, these managers are responsible for traditional purchasing functions. They handle purchasing requests from different departments, issue purchase orders for non-strategic supplies and follow up orders to ensure that suppliers deliver on time. They create reports on purchasing and compare expenditures against purchasing budgets for different departments or different types of supply.

Customer is the recipient of a good, service, product or an idea - obtained from a seller, vendor, or supplier via a financial transaction or exchange for money or some other valuable consideration

Pay

Purchasing managers earned a median annual salary of $95,070 in 2010, with employment opportunities expected to grow 7 % from 2010 to 2020, according to the BLS.

5.3 PURCHASING ORGANIZATION STRUCTURE

The purchasing function of any company is vitally important to the success of that company. By negotiating with vendors, a purchasing department can get the best quality items, at the best price, at the right delivery time. In this way, a company can ensure that they have the parts available for their manufacturing process, which in turn allows the production team to produce and deliver quality items to the **customer**.

The way in which a purchasing department is structured is directly dependent on the way in which the company operates. Having a purchasing organization structured in the wrong manner can lead to higher costs for materials and inconsistencies for the production of finished goods, which can lead to degradation in customer satisfaction.

Small Business

For small businesses, the purchasing of materials is as important as it is for large companies. A small business operates in a lean manner, and the purchasing process may be simple, but still has to operate successfully. A small business may have one purchasing professional who has to procure all the items required for the business. The advantage of a single purchasing professional is that they will usually have a personal relationship with vendors and can act quickly when issues arise. However, they need to ensure that materials arrive when they are required and at the correct price.

As businesses grow, the single purchasing professional can easily become overwhelmed and this can lead to their inability to keep on top of vendors and deliveries. It is important for small businesses to understand that a growing company needs to ensure that their purchasing department grows in step to ensure that they maintain the efficiencies that had been created.

Centralized purchasing should allow the purchasing department to ascertain the best price and conditions from vendors by offering them a commitment to buy in larger volumes.

Centralized Purchasing

Larger companies often adopt a centralized purchasing structure with all the purchasing staff reporting to purchasing executive. The centralized purchasing organization will accommodate the purchasing requirements for the whole company. *For example,* if a company has seven plants across the US, the central purchasing organization will be located in one location, and purchase items for all seven plants.

There are a number of reasons why companies would choose this type of purchasing structure. By having a single purchasing organization, the company is able to leverage the total spend of the company when negotiating with vendors.

Centralized purchasing organizations also allow purchasing professionals to specialize in one area.

For example, a purchasing clerk could work with vendors who provide steel products, whereas if they were in a smaller purchasing department they would have to work with vendors from many industries.

Companies often like centralized purchasing departments as it gives them a higher degree of control over the purchasing process. By having the purchasing dispersed across the organization, then there would be a far greater number of personnel involved in the process and less control of the purchasing process.

Decentralized Purchasing

Organizations with many locations can adopt a decentralized purchasing model. This allows each facility or a group of facilities to carry out their own purchasing. This purchasing model can be successful where the culture of the organization is such that each location acts as its own profit center, or has a business that is different from other locations. For companies that have acquired businesses that may not be akin to their core business, then the decentralized purchasing structure would be more appropriate. Local purchasing organizations will often operate similarly to the small business model where they will have closer ties to local vendors and be able to react quickly when required.

Where facilities require the delivery of items at a moment's notice, the centralized purchasing model is not appropriate. If a stock out is imminent, and manufacturing will be halted, then a local vendor can often deliver the same day, whereas centralized purchasing will probably deal with a national vendor who will not be able to offer the same response.

Many companies have tried to adopt a mix of centralized and decentralized purchasing, where facilities have the purchasing responsibility for certain critical production items, but the central purchasing organization has the task of purchasing non-critical items.

5.3.1 Centralized Versus Decentralized Purchasing

Centralized purchasing involves coordinating all purchasing activities for the entire plant through one central location. That purchasing department is the only place in the firm where requisitions are processed and suppliers are selected. Decentralized purchasing authority and responsibility for supply-related functions are disposed throughout the organization.

Advantages of Centralized Purchasing

Centralized purchasing results in lower costs because of the availability of purchase quantity discounts. If all material uses are coordinated into one major purchase, the supplier will work harder to service the buying firm. Large dollar purchase quantities equal buying power. Most manufacturing firms spend more than 70 % of their total revenue on purchasing materials and component parts. Thus, the effectiveness of a centralized organizational design will have a significant impact on profit. As an example, consider a firm that has several departments that use similar components; they could actually compete against each other for scarce material, resulting in higher prices for each department. Centralized purchasing promotes the effective use of purchasing professionals because it allows the supply manager more authority and credibility. Each buyer can easily become an expert on associated buys.

Expertise will be developed when there is a critical mass. GM, Dell, Walmart, and IBM all use centralized purchasing and have in-house expertise ranging from engine parts to rental cars to office equipment to pharmaceuticals.

Centralized purchasing enables the buying firm to do a better job of monitoring various changes throughout the industry. **Centralized purchasing** also lends itself to periodic (1) reviews of purchasing activities, (2) evaluation of suppliers, and (3) development of purchasing training programs. In decentralized purchasing operations, these important strategic activities may not be accomplished. Centralized purchasing is preferred from the suppliers' point of view. The selling firm can easily determine whom to call on. This will improve efficiency for both parties.

Centralized purchasing refers to the purchase of materials by a single purchase department. This department is headed and managed by a purchasing manager.

Disadvantages of Centralized Purchasing

There are several arguments against centralization. Most of the resistance is from companies where there are decentralized profit centers. The three main arguments are given below:

- High engineering involvement in procurement decision making. At the early stages of product development, engineering needs to be deeply involved with the design, which can be different with remotely located centralized purchasing.

- High need to coordinate purchased parts with production schedules. This is especially applicable when small amounts are ordered frequently. The supplying firm must be within close geographical proximity or guarantee JIT deliveries. It may not be cost-effective to have centralized purchasing operations in some JIT situations.
- High need to buy from local community. Sometimes it makes good political sense for firms to make purchases in the community where the plant is located. Because of the profit-leveraging effect, profit center managers feel the need to control purchasing if they are to be held accountable for profits.

Advantages of Decentralized Purchasing

Decentralized purchasing provides for a more streamlined procedure since the department manager's purchasing needs and thus decisions can be made immediately.

As an example, if a manager needs to purchase 10 laptops for the business unit, the unit manager can easily make the purchase online or from a local computer store.

Disadvantages of Decentralized Purchasing

The disadvantages of decentralized purchasing are duplication of effort in buying, receiving, inspection, and accounts payable. Decentralized purchasing also prevents the buying organization from taking advantage of volume discounts.

SUMMARY

- Purchasing is the organized acquisition of goods and services on behalf of the buying entity.
- Purchasing management directs the flow of goods and services in a company and handles all data relating to contact with suppliers.
- The manufacturing process depends on raw materials, as well as supplies. In a small business, your need to keep costs down may always seem to be at war with your need to produce the best quality.
- Purchase orders (POs) are documents of authorization that are issued by a buyer and extended to a seller.
- Market purchasing refers to buying goods for taking advantages of favorable market situations.
- Purchasing departments are responsible for procuring supplies. This largely involved order-placing and was primarily a clerical position.
- A purchasing department also is charged with continuously evaluating whether it is receiving these materials at the best possible price in order to maximize profitability.
- The purchasing function of any company is vitally important to the success of that company.

KNOWLEDGE CHECK

1. **The terms purchasing and procurement should not be seen as synonymous. As such, which of the following statements do you think has greatest validity?**
   a. Purchasing has a broader meaning than procurement
   b. Procurement is broadly equivalent to purchasing
   c. Procurement has a broader meaning than purchasing
   d. None of the above
2. **The range of potential options for improving purchasing processes are indicated by benefits described by the Chartered Institute of Purchasing and Supply such as:**
   a. Multimedia
   b. Content management
   c. Evaluation of end-to-end trading cycles
   d. All of the above

3. **E-procurement aims to improve performance of what is known as the 'five rights of purchasing'. One aim of e-procurement is increasing savings by sourcing items:**
   a. Of the right quantity
   b. From the right source
   c. Of the right quality
   d. At the right price
4. **of the following, which is an e-procurement benefit related to budgetary control?**
   a. Reduced purchase cycle
   b. Enabling them to concentrate on strategic purchasing issues
   c. Rules to limit spending and improved reporting facilities
   d. Correcting errors is traditionally a major part of a buyer's workload
5. **Production related procurement refers to the purchasing of:**
   a. Furniture
   b. Office supplies
   c. Information systems
   d. Raw materials

REVIEW QUESTIONS

1. What do you understand by purchasing management?
2. Explain the objectives for purchasing in manufacturing.
3. Describe the roles of a purchasing department.
4. Differentiate between purchasing and supply management.
5. Write the short note on:
   a. Purchase Order
   b. Strategic Purchasing

CHECK YOUR RESULT

1. (c) 2. (d) 3. (d) 4. (c) 5. (d)

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CHAPTER

6

GLOBAL OPERATIONS MANAGEMENT

LEARNING OBJECTIVES

After studying this chapter, you will be able to:

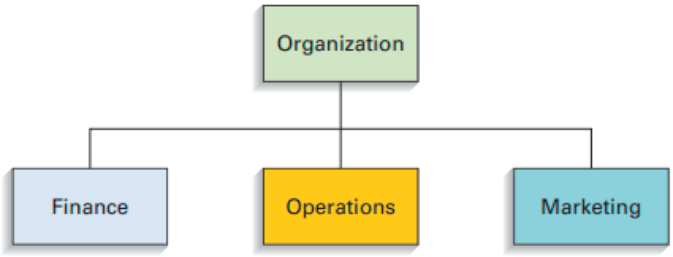
1. Describe the global management
2. Explain the world financial environment
3. Understand by managing international operations

INTRODUCTION

Operations is that part of a business organization that is responsible for producing goods and/ or services. Goods are physical items that include raw materials, parts, subassemblies such as motherboards that go into computers, and final products such as cell phones and automobiles. Services are activities that provide some combination of time, location, form, or psychological value.

While the operations function is responsible for producing products and/or delivering services, it needs the support and input from other areas of the organization: finance, marketing, and operations. It does not matter whether the business is a retail store, a hospital, a manufacturing firm, a car wash, or some other type of business; all business organizations have these three basic functions. Finance is responsible for securing

financial resources at favorable prices and allocating those resources throughout the organization, as well as budgeting, analyzing investment proposals, and providing funds for operations. Marketing and operations are the primary, or "line," functions. Marketing is responsible for assessing consumer wants and needs, and selling and promoting the organization's goods or services. Operations is responsible for producing the goods or providing the services offered by the organization.



Operations and supply chains are intrinsically linked and no business organization could exist without both. A supply chain is the sequence of organizations their facilities, functions, and activities that are involved in producing and delivering a product or service.

6.1 GLOBAL MANAGEMENT

International and global management is concerned with the techniques and practices that are involved in directing and controlling international organizations. Thus, it covers all the issues that arise as a consequence of international and global strategies. In practice, strategy and management at the senior level of a company are inter-related.

6.1.1 The Scope of Operations Management

The scope of operations management ranges across the organization. Operations management people are involved in product and service design, process selection, selection and management of technology, design of work systems, location planning, facilities planning, and quality improvement of the organization's products or services.

The operations function includes many interrelated activities, such as forecasting, capacity planning, scheduling, managing inventories, assuring quality, motivating employees, deciding where to locate facilities, and more. We can use an airline company to illustrate a service organization's operations system. The system consists of the airplanes, airport facilities, and maintenance facilities, sometimes spread out over a wide territory. The activities include:

- Forecasting such things as weather and landing conditions, seat demand for flights, and the growth in air travel.
- Capacity planning, essential for the airline to maintain cash flow and make a reasonable profit. (Too few or too many planes, or even the right number of planes but in the wrong places, will hurt profits.)
- Facilities and layout, important in achieving effective use of workers and equipment.
- Scheduling of planes for flights and for routine maintenance; scheduling of pilots and flight attendants; and scheduling of ground crews, counter staff, and baggage handlers.
- Managing inventories of such items as foods and beverages, first-aid equipment, inflight magazines, pillows and blankets, and life preservers.
- Assuring quality, essential in flying and maintenance operations, where the emphasis is on safety, and important in dealing with customers at ticket counters, check-in, telephone and electronic reservations, and curb service, where the emphasis is on efficiency and courtesy.
- Motivating and training employees in all phases of operations.
- Locating facilities according to managers' decisions on which cities to provide service for, where to locate maintenance facilities, and where to locate major and minor hubs.

6.1.2 Comparative Environmental Frameworks

When company's source, manufacture, and/or market products in foreign countries, they encounter fascinating and often challenging cultural environments. Culture and

business practices are ever changing and these shifting trends are incorporated in the cases and examples. While exploring the causes of cultural differences, rigidities, and changes, it focuses upon the impact of cultural traditions on business activities, as well as the mutually satisfactory reconciliation of cultural differences.

The Cultural Environments Facing Business

Modern cultural imperialism has come about because of the technical, political, military, and economic supremacy of the developed countries in relation to the less developed countries of the world. Exposure to news and entertainment media, extensive advertising, mass distribution, and Western tourists leads periphery peoples to believe that Western lifestyles are glamorous, exciting, and desirable.

As international firms take advantage of this newly created demand, they uncaringly employ practices and attitudes that further upset the local culture and self-identity that helps stabilize a nation. While rich countries may be able to prohibit investment in culturally sensitive industries, restrict the use of foreign languages, limit the screening of foreign films, etc., periphery countries lack the resources to do so.

Identification and Dynamics of Cultures

Cultures consist of people who share attitudes, values and beliefs. Cultures are dynamic; they evolve over time.

The Nation as a Point of Reference

Similarity among people is both a cause and an effect of national boundaries; in addition, laws apply primarily along national lines. National identity is perpetuated through the rites and symbols of a country and a common perception of history. At the same time, various subcultures and ethnic groups may transcend national boundaries. In some instances, similarities may link groups across different nations more closely than certain groups within a nation.

Cultural Formation and Dynamics

Culture is transmitted in a variety of ways, but by age 10 most children have their basic value systems firmly in place. Nonetheless, individual and societal values and customs often evolve in response to changing economic and social realities. Change brought about by imposition is known as cultural imperialism. The introduction of certain elements of an outside culture may be referred to as creolization, indigenization, or cultural diffusion.

Language as a Cultural Stabilizer

While a common language within a country serves as a unifying force, language diversity may undermine a firm's ability to conduct business on a national level. Isolation from other groups, especially because of language, tends to stabilize cultures. Some countries see language as such an integral part of their cultures that they attempt to regulate the use or inclusion of foreign words.

Religion as a Cultural Stabilizer

Religion can be a strong shaper of values and beliefs and is a major source of both cultural imperatives and taboos. Still in all, not all nations that practice the same basic religion place identical constraints on business. Historically, violence among religious groups has disrupted local and international business activities in both home and host country firms.

Business Strategy is the means by which it sets out to achieve its desired ends (objectives).

Behavioral Practices Affecting Business

Attitudes and values affect all dimensions of business activities, from what products to sell to how to organize, finance, manage, and control operations.

Social Stratification Systems

People fall into social stratification systems according to group memberships that in turn determine a person's degree of access to economic resources, prestige, social relations and power. Ascribed group memberships are defined at birth and are based on characteristics such as gender, family, age, caste and ethnic, racial, or national origin. Acquired group memberships are based on one's choice of affiliations, such as political party, religion and professional organizations. Social stratification affects both **business strategy** and operational practices.

- *Role of Competence:* Some nations base a person's eligibility for jobs and promotions primarily on competence, but in others, competence is of secondary importance. In more egalitarian societies, group membership is less important, but in more closed societies, group membership may dictate one's access to education, employment, etc.

- *Gender-based Groups:* There are strong country-specific differences in attitudes toward males and females, as well as vast differences in the types of jobs regarded as male or female. Nonetheless, barriers to employment based on gender are easing in many parts of the world.
- *Age-based Groups:* Many cultures assume age and wisdom are correlated; thus, they usually have a seniority-based system of advancement. In others, there is an emphasis on youth, particularly in the realm of marketing. All in all, age represents a complex, dynamic issue.
- *Family-based Groups:* In societies where there is low trust outside the family (e.g., China and southern Italy), small family-run companies are generally more successful than large firms. However, this may impede the economic development of the country if large-scale operations are necessary to compete globally.
- *Occupation:* In every society certain occupations are perceived as having greater economic and social prestige than others. Although some perceptions are universal, there are significant national and cultural attitudes about the desirability of specific occupations as well as the desire to work as an entrepreneur rather than as an organizational employee.

Motivation

Employees who are motivated to work long and hard are generally more productive than those who are not. On an aggregate basis, this will have a positive effect on economic development and national competitiveness.

- *Materialism and Leisure:* People are motivated to work for various reasons, including the desire for achievement. In some societies, people desire less leisure time than others. In 1904 sociologist Max Weber claimed that predominantly Protestant Western economies were the most economically developed because of the emphasis on hard work and investment. Weber identified this view of work as a path to salvation as the Protestant ethic. In rural India, however, where minimal material achievement is a desirable end, added productivity will likely be taken in the form of leisure, rather than income.
- *Expectation of Success and Reward:* Although the same tasks performed in different countries will have different probabilities of success as well as different rewards for success and different consequences for failure, people will usually work harder at any task when the reward for success is greater than the consequence of failure. The greatest enthusiasm for work exists when high uncertainty of success is combined with the likelihood of a very positive reward for success and little or none for failure.
- *Masculinity Index:* Hofstede's study of employees from 50 countries defined a high masculinity index as describing someone who holds the belief that

it is better to live to work than to work to live. However, such attitudes, as well as a preference for promotion and profitability over quality of life and environment, are not shared by all. Those differences of opinion present major challenges for international managers.

- *Need Hierarchy:* Maslow's hierarchy of needs states that people will try to fulfill lower-order physiological needs before satisfying (in order) their security, social, esteem and self-actualization needs. People from different countries attach different degrees of importance to needs and may even rank some of the higher-order needs differently.

Relationship Preferences

In social stratification systems, not everyone within a given reference group is necessarily an equal. In addition, there may be strong or weak pressures for conformity within one's group. Both of these differences influence management style and marketing behavior.

- *Power Distance:* Power distance describes the relationship between superiors and subordinates. When power distance is high, the management style is generally distant, i.e., autocratic or paternalistic; when it is low, managers tend to interact with and consult subordinates as part of the decision-making process. *For example*, Malaysians typically exhibit high power distance, while Austrians typically exhibit low power distance.
- *Individualism vs. Collectivism:* Nationalities differ as to whether they prefer an autocratic or a consultative working relationship, whether they want set rules and how much they compete or cooperate with fellow workers. Individualism is the trait that indicates a person's desire for personal freedom, time and challenge and one's low dependence on the organization; self-actualization is a prime motivator. On the other hand, collectivism indicates a person's desire for training, collaboration and shared rewards, i.e., one's high dependence on and allegiance to the organization. *For example*, Americans tend to be individualistic, while the Japanese tend to be collectivist.

Risk-taking Behavior

Nationalities differ in their attitudes toward risk-taking. Uncertainty avoidance, trust and fatalism are examined here.

- *Uncertainty Avoidance:* Uncertainty avoidance describes one's acceptance of risk. When the score is high, people need precise directions and long-term assurances; when the score is low, people are willing to accept the risk of trying new products or moving to new jobs. *For example*, Greeks tend to exhibit high uncertainty avoidance, while Swedes tend to be low on the scale.

- *Trust:* Trust represents one's belief in the reliability and honesty of another. Where trust is high, there tends to be a lower cost of doing business. *For example*, Norwegians tend to exhibit a high degree of trust, whereas Brazilians tend to be skeptical.
- *Fatalism:* Fatalism represents the belief that events are predestined. Such a belief may discourage people from working hard to achieve an outcome or accepting responsibility. Muslim societies, *for example*, tend to be fatalistic.

Information and Task Processing

People from different cultures obtain, perceive, and process information in different ways; thus, they may also reach different conclusions.

- *Perception of Cues:* People identify things by means of their senses in various ways with each sense. The particular cues used vary both for physiological and cultural reasons. *For example*, the richer and more precise a language, the better one's ability to express subtleties.
- *Obtaining Information:* Language represents a culture's means of communication. In a low-context culture, people rely on first-hand information that bears directly on a decision or situation; people say what they mean and mean what they say. In a high-context culture, people also rely on peripheral information and infer meaning from things communicated indirectly; relationships are very important. *For example*, while Germany is considered to be a low-context culture, Saudi Arabia is considered to be a high-context culture.
- Information *Processing:* All cultures categorize, plan and quantify, but the ordering and classification systems they use often vary. In monochronic cultures (e.g., northern Europeans) people prefer to work sequentially, but in polychronic cultures (e.g., southern European) people are more comfortable working on multiple tasks at one time. Likewise, in some cultures people focus first on the whole and then on the parts; similarly, in idealistic cultures people will determine principles before they attempt to resolve issues, but in pragmatic cultures they will focus more on details than principles.

The Political and Legal Environments Facing Business

Multinational enterprises (MNEs) like Swire must operate in countries with different political and legal conditions. For the company to succeed, its management must carefully analyze whether its corporate policies will fit a desirable political and legal environment. Can it operate successfully in China doing the same things it does in Hong Kong, or must it adapt its operating strategies to fit the political and economic climate in China?

The Political Environment

A political system integrates the parts of a society into a viable, functioning unit. A major challenge of the political system is to bring together people of different ethnic or other backgrounds and to allow them to work together to govern themselves. A country's political system influences how business is conducted domestically and internationally. In Hong Kong, *for example*, the political change that resulted when China took control in1997 worried many managers because they believed that China would change the relationship between government and business, with the government exerting more influence and control in the business environment.

Political policies are established by aggregating, or bringing together, different points of view that are articulated by key constituencies, such as politicians, individuals, businesses, or other special interest groups. In the case of Hong Kong, business has always been the key constituency regarding decisions about what government policies are to be established. However, that is beginning to change; other interest groups are emerging to balance off the needs of business. Given the interests of different constituencies, governments identify policy alternatives and then choose a specific policy that it will pursue. The policy is then implemented, Political change or validation may come in many forms. The photo shows throngs of people waiting to vote in Zimbabwean elections. Note that males and females wait in separate lines and it may be altered depending on the reactions of political parties, government bureaucracies, legislatures, courts, and other constituencies. Normally, the chief executive officer (CEO) of an MNE watches policies as they develop and makes sure that the company voices its concerns in the interest articulation stage. Then the CEO may want to work closely with a country's key decision makers in the policy formulation stage, which entails lobbying activities. Finally, the CEO may voice the company's stance on policies once

they have been implemented. The key is to make sure that the company does not look as if it is trying to influence laws inappropriately. Sometimes a CEO will try to influence the home-country government on policies that affect countries in which the firm is operating. Prior to 2000, when the United States granted permanent normal trade relations to China, that decision had to be made annually. The United States-China Business Council, an organization of over250 companies doing business in China, lobbies on behalf of its members for stable and expanded U.S.-China economic links. The council includes companies such as Philip Morris, AT&T, Federal Express, BellSouth, and Lockheed Martin Company.

The Economic Environments Facing Businesses

The economic environment consists of external factors in a business' market and the broader economy that can influence a business. One can divide the economic environment into the microeconomic environment, which affects business decision-making such as individual actions of firms and consumers, and the macroeconomic environment, which affects an entire economy and all of its participants. Many economic factors act as external constraints on your business, which means that one has little, if any, control over them. Let us take a look at both of these broad factors in more detail.

- Macroeconomic influences are broad economic factors that either directly or indirectly affect the entire economy and all of its participants, including your business. These factors include such things as:
  - Interest rates
  - Taxes
  - Inflation

- Currency exchange rates
- Consumer discretionary income
- Savings rates
- Consumer confidence levels
- Unemployment rate
- Recession
- Depression

- Microeconomic factors influence how your business will make decisions. Unlike macroeconomic factors, these factors are far less broad in scope and do not necessarily affect the entire economy as a whole. Microeconomic factors influencing a business include:
  - Market size
  - Demand
  - Supply
  - Competitors
  - Suppliers
  - Distribution chain such as retailer stores

The economic environment of business will play a pivotal role in determining the success or failure of a business. Let us first consider some macroeconomic factors. If interest rates are too high, the cost of borrowing may not permit a business to expand. On the other hand, if unemployment rate is high, businesses can obtain labor at cheaper costs. However, if unemployment is too high, this may result in a recession and less discretionary consumer spending resulting in insufficient sales to keep the business going. Tax rates will take a chunk of income and currency exchange rates can either help or hurt the exporting of products to specific foreign markets.

Globalization and Society

Globalization is an often-discussed but seldom-defined phenomenon. At a broad level, globalization is an increase in the impact on human activities of forces that span national boundaries. These activities can be economic, social, cultural, political, technological, or even biological, as in the case of disease. Additionally, all of these realms can interact. Globalization has taking place for centuries and, with time, has accelerated, from the colonization of the inhabited parts of the world to the appearance of nations, from conquests to independent countries, from sailboats and caravans to steamboats, truck fleet and cargo planes, from trade in a few commodities to global production and distribution networks and to the present explosion of international flows services, capital, and information.

DID YOU KNOW?

The term globalization has been increasingly used since the mid-1980s and especially since the mid-1990s. In 2000, the International Monetary Fund (IMF) identified four basic aspects of globalization: trade and transactions, capital and investment movements, migration and movement of people, and the dissemination of knowledge.

The effects of globalization are widely debated. Globalization attracts increasing interest and importance in contemporary world affairs. It also inspires passionate supporters and critics. This class is aiming to explore different facets of the complex, evolving phenomenon of globalization. The course introduces the main debates about the global economy and their implications for real life from many different aspects: culture, economics, gender differences, etc. One will illustrate what globalization has seemed to accomplish and what problems are being faced.

Globalization has five primary economic dimensions: trade, finance, aid, migration, and ideas. Do increases in these dimensions of globalization, if managed in a way that supports development in all countries, can help to alleviate global poverty? The impact of globalization on culture and the impact of culture on globalization merit discussion. Globalization has economic roots and political consequences, but it also has brought into focus the power of culture in this global environment the power to bind and to divide in a time when the tensions between integration and separation tug at every issue that is relevant to international relations.

6.1.3 Theories and Institutions

Foreign trade is an age-old phenomenon. It examines many of the descriptive and prescriptive theories associated with this process. Beginning with Mercantilism, it presents the concepts of absolute and comparative advantage, factor proportions

theory and country size and country similarity theories. It also discusses the international product life cycle and Porter's determinants of national competitive advantage.

Porter's Theory of Competitive Advantage

Michael Porter's theory of the competitive advantage of nations provides a sophisticated tool for analyzing competitiveness with all its implications. Porter's theory contributes to understanding the competitive advantage of nations in international trade and production. Its core, however, focuses upon individual industries, or clusters of industries, in which the principles of competitive advantage are applied. His theory begins from individual industries and builds up to the economy as a whole. Since firms, not nations compete in international markets, understanding the way firms create and sustain competitive advantage is the key to explaining what role the nation plays in the process. Therefore, the essence of his argument is that "the home nation influences the ability of its firms to succeed in particular industries". Given this interdependence, it appears that in order to draw conclusions on the competitiveness of the particular industry, consideration of the different facets of the competitive diamond of the whole nation is needed.

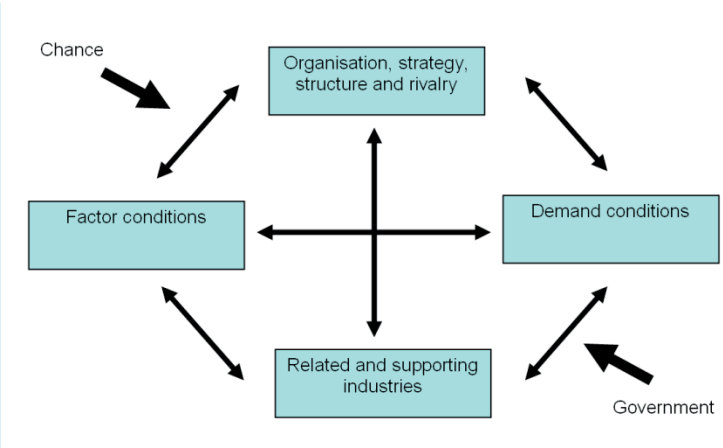


Figure 6.1: The theory of competitive advantage.

Michael Porter considers the competitiveness of a country as a function of four major determinants:

- Factor conditions
- Demand conditions
- Related and supporting industries
- Firm strategy, structure, and rivalry.

Even though these determinants influence the existence of competitive advantage of an entire nation, their nature suggests that they are more specific of a particular industry rather than typical of a country. The reason for this is that in Porter's theory the basic unit of analysis for understanding competition is the industry. "The industry is the arena in which the competitive advantage is won or lost." So, seeking to isolate the competitive advantage of a nation means to explain the role played by national attributes such as a nation's economic environment, institutions, and policies for promoting firms' ability to compete in a particular industry.

Factor Conditions

Factor conditions being the inputs which affect competition in any industry comprise a number of broad categories:

- *Human Resources*: the quantity, skills, and cost of personnel (including management);
- *Physical Resources*: the abundance, quality, accessibility, and cost of the nation's land, water, mineral, or timber deposits, hydroelectric power sources, fishing grounds, and other physical traits.
- *Knowledge Resources*: the accumulated scientific, technical, and market knowledge in a nation in the sphere of goods and services
- *Capital Resources*: the stock of capital available in a country and the cost of its deployment;
- *Infrastructure Resources*: the characteristics (including type, quality) and the cost of using the infrastructure available.

While analyzing these factors as a prerequisite for building competitive advantage, it is relatively unimportant to emphasize just their quantity or involvement in a particular industry. What determines their influence on competitiveness is the degree of efficiency and effectiveness of the way they are deployed within an industry.

This in turn affects directly their potential for influencing the establishment of competitive advantage. Nevertheless, productivity in deployment does not automatically translate into international success. This is achieved only under the condition that the other determinants in the "diamond" are in a position to influence favorably the utilization of production factors. With a view of isolating the factors which are most significant for the creation of competitive advantage in the context of the whole "diamond", a hierarchy among factors has been established.

Depending on the degree of investment required for the possession of a particular factor, factors of production are divided into two groups: basic and advanced. Basic factors are passively inherited, that is, their creation requires relatively modest or unsophisticated private and social investment. They can include natural resources, climate, location, unskilled or semi-skilled labor, and debt capital. Unlike them,

advanced factors which can comprise highly educated personnel, modern digital data communications infrastructure, etc. require large and often sustained investments for their development. Factor development which has been achieved through substantial investment, in turn, provides for the creation of a higher-order competitive advantage and, therefore, assumes greater significance for competitiveness.

Distinguishing among factors for the purpose of isolating those which account for the establishment of competitive advantage most, yields another division: generalized and specialized factors. Generalized factors derive their name from the feature that they could be deployed in a wide range of industries. Specialized factors, on the other hand, are characterized by a narrow field of application due to a high degree of customization to the needs of a particular industry. Compared to the generalized factors, specialized factors require more focused, and often riskier, private and social investment. This, together with their specifically tailored characteristics to the nature of the particular industry, determines their superiority over generalized factors in terms of influencing the creation of competitive advantage. With respect to the relation between advanced and specialized factors, the latter do not necessarily comprise the former, but at any rate the more constantly upgrading and developing advanced and specialized factors of production exist in an industry, the better is the basis for a significant and sustainable advantage in a given field.

Demand Conditions

The importance of demand conditions as a factor influencing competitive advantage stems from the fact that in a market economy the direction of production, that is, the kinds of goods which are produced, is determined by the needs of buyers. What this means is that, regardless of the state of the other determinants in the "diamond", competitiveness in an industry is impossible to be achieved unless demand conditions allow for the successful realization of firms' products. Underlying this dependence is the dynamic influence of home demand which shapes the rate and character of

improvement and innovation by a nation's firms. The sources of this influence within the context of home demand are divided into three broad attributes: the composition of home demand, the size and pattern of growth of home demand, and the mechanisms by which a nation's domestic preferences are transmitted to foreign markets.

- *Home Demand Composition*: The composition of home demand determines the way firms perceive, interpret, and respond to buyer needs. Three characteristics of the composition of home demand play a particularly significant role for the achievement of competitive advantage. One of them refers to the segment structure of demand. It is quite favorable for enhancing competitiveness provided that the relevant segment of the market represents a highly visible share of home demand but accounts for a less significant share in other nations. An even more important feature of home demand composition is the level of buyers' sophistication. Its significance stems from the fact that sophisticated and demanding buyers exert pressure on firms to excel in quality of the product, features, and service and thus help for sustaining the acquired advantage. A final attribute of home demand composition which could spur the establishment of competitive advantage relates to anticipatory buyer needs. They give priority of firms over their international competitors by indicating early what will become widespread later.
- *Demand Size and Pattern of Growth*: In order for a clear relationship between this attribute of home demand and competitive advantage to be established, a number of its characteristics should be considered. One of them is the size of home demand. Its importance is expressed in the fact that depending on the magnitude of the home market a nation's firms could be encouraged, with a view of reaping economies of scale and learning, to invest aggressively in large-scale facilities, technology development, and productivity improvement.

Another important factor which could spur activities intended to create or upgrade competitive advantage is the rate growth of home demand. The latter could lead firms

to adopt new technologies faster and to make changes for increased efficiency without fearing that there would be no response on the part of consumers. The effect of these two factors is further enhanced provided that home demand is characterized by early saturation as well. The underlying logic is that early saturation, like early penetration, directs a nation's firms to products and product features that are desired abroad.

- *Internalization of Domestic Demand*: While the source for creating national advantage is rooted in the composition of home demand, its sustainability is accounted for by the size and pattern of growth of home demand, the transfer of a nation's products and services abroad relates to a third attribute of home demand, its capacity of becoming internalized. This attribute refers to the existence of mobile or multinational local buyers which could create an advantage for a nation's firms since domestic buyers are also foreign buyers. It hints on the other aspect of this attribute: the influence exerted on foreign needs. The latter presents another way through which domestic demand conditions can pull through foreign sales and relates to the cases when domestic needs and desires get transmitted to or inculcated in foreign buyers.

Related and Supporting Industries

When trying to determine the sources of competitive advantage in an industry, the latter should not be considered separately but rather in the context of the whole economy. Special account should be taken of the industries which are directly related or support the one whose competitiveness is a subject of investigation. The reason for this requirement is that, provided supplier industries possess an international advantage, downstream industries could benefit from it in several ways. One of them refers to the access that competitive supplier industries provide access to cost-effective inputs. Given the increasingly significant globalization process, which makes inputs available on global markets, emphasis should be put not on the availability of the inputs but on their effective utilization. Therefore, a more important aspect in which the presence of competitive advantage in supplier industries could influence the creation of one in the downstream industries is the provision of coordination on the part of the former in terms of linkages with the value chains of the latter. Perhaps the most important benefit of home-based suppliers, however, is expressed in the process of innovation and upgrading. It refers to a mutual influence between firms and their suppliers. On the one hand, suppliers help firms to perceive new methods and opportunities to apply new technology. A spur to innovation could, on the other hand, be given from firms to their suppliers by influencing suppliers' technical efforts in a direction of testing new developments and ideas. Other factors such as exchange of R&D, joint problem solving or transmitting of information through suppliers to different firms contribute to the establishment of a fast pace of innovation within the entire national industry.

In regard to related industries, they could also be a source of competitive advantage to the industry in question. "Related industries are those in which firms can coordinate or share activities in the value chain when competing, or those which involve products that are complementary." Technology development, manufacturing, distribution, marketing or service are all areas in which sharing of activities could occur. This process is especially beneficial, given that the related industry is internationally successful, which means that it stimulates the establishment of competitive advantage in other industries through providing opportunities for information flow and technical interchange. Another way through which related industries could influence competitiveness is by means of pulling through demand for complementary products and services. The greater the number of related industries which possess competitive advantage in a nation, the greater is the possibility for this nation to achieve sustained success in an industry. This, however, depends to a significant extent on the state of the factors forming the rest of the "diamond" because it is only when the facets are working in a system that the conditions for building a true competitive advantages are ensured.

Firm Strategy, Structure, and Rivalry

Closing the circle of factors which determine the existence of competitive advantage it is necessary to consider the context in which firms are created, organized and managed as well as the nature of domestic rivalry. The goals, strategies, and ways of organizing firms in industries are widely influenced by national circumstances. The achievement of national advantage depends on the degree to which these choices correspond to the sources of competitive advantage in an industry. Firm strategy and structure are reflective of company goals and individual goals as well as national prestige and national priority. Company goals are most strongly determined by ownership structure, the motivation of owners and holders of debt, the nature of the corporate governance, and the incentive processes that shape the motivation of senior managers.

Provided that the goals of owners and managers match the needs of the industry, the opportunities for success are greatly enhanced. As far as the goals of individuals who work in firms are concerned, they also have a significant role for creating and upgrading competitive advantage. The achievement of the latter depends on the motivation of people to develop their skills as well as to expend the necessary effort needed for the company's success. Another source of powerful influence on the way firms are organized is national prestige or national priorities. These factors affect the process of attracting qualified human resources to particular industries as well as the strength of individuals' and shareholders' motivation. Provided that the latter is quite pronounced it also turns into an important conductor of corporate success. The reason for it is that it assures sustained commitment of capital and human resources to an industry, to a firm, and for employees, to a profession. This in turn enhances productivity and effectiveness.

The stimuli for increased productivity and effectiveness should also be traced at a higher level which encompasses not only the manner of a firm's organization but also its performance as influenced by the behavior of its competitors. In this respect, an important correlation based on empirical findings has been established. It concerns the association between vigorous domestic rivalry and the creation and persistence of competitive advantage in an industry. The underlying logic is that competition at home pressures firms to improve and innovate. Having once established the manner for constant upgrading of their competitive edge at home, companies easily transfer their strategy for success on a worldwide scene. Vigorous local rivalry can also stimulate competitiveness through bringing fourth the need for enlarging the firms' markets and selling abroad in order to grow. This is particularly likely in the presence of economies of scale when local competitors force each other to direct their activities abroad in the pursuit of greater efficiency and higher profitability. Domestic rivalry not only creates pressures to innovate but to innovate in ways that upgrade the competitive advantages

of a nation's firms. The presence of rivals lowers the significance of advantages created through little effort and investment (e. g. those which stem simply from being in a nation). It, therefore, forces a nation's firms to seek higher and ultimately more sustainable sources of competitive advantage. So, contrary to the wrongly perceived notion of "national champions" reaping economies of scale in the home market, the existence of strong domestic rivalry keeps from reliance on factor advantages as well as conditions their more efficient deployment.

Apart from the major determinants Porter considers two additional variables which are not as important as the determinants in influencing the creation of a competitive advantage but are significant in shaping the direction of the influence. These are chance and government. Chance events are developments beyond the control of firms, such as pure inventions, breakthroughs in basic technologies, etc. They can play an important role in shifting competitive advantage in many industries. Government, being the other variable, is important to the extent to which its policies can influence the entire system of determinants either in the direction of undermining or enhancing competitive advantage.

Important in understanding the determinants' power to foster competitiveness in an industry is the condition for their being interrelated. What this means is that the determinants should form a mutually reinforcing system, referred to as a "diamond", and the effect of one of them should be contingent on the state of others. This implies not only the inadequacy of one favorable national attribute to induce competitive advantage itself but also the possibility that an advantage in one determinant can create or upgrade advantages in others.

Trade and Investment

Foreign trade (importing and exporting activities) is one means by which countries are linked economically. Two general types of trade theories pertain to international business. Descriptive theories deal with the natural order of trade; they examine and explain patterns of trade under laissez-faire conditions. Prescriptive theories deal with the question of whether governments should seek to alter the amount, composition and/or direction of trade.

The concept of mercantilism (a zero-sum game) was popular from about 1500-1800; it purports that a country's wealth is measured by its holdings of treasure (usually gold). To amass a surplus (a favorable balance of trade) a country must export more than it imports and then collect gold (and other forms of wealth) from countries that run a deficit (an unfavorable balance of trade). Neomercantilism represents the more recent policy of countries that try to run a favorable balance of trade in order to achieve some particular national objective via protectionism.

In 1776 Adam Smith claimed the wealth of a nation consisted of the goods and services available to its citizens. His theory of absolute advantage holds that a country can maximize its own economic wellbeing by specializing in the production of those goods it can produce more efficiently than any other nation and enhance global efficiency through its participation in (unrestricted) free trade.

- *Natural Advantage:* A country may have a natural advantage in the production of particular products because of given climatic conditions, access to certain natural resources, the availability of needed labor forces, etc.
- *Acquired Advantage:* An acquired advantage represents a distinct advantage in skills, technology and/or capital assets, thus yielding differentiated product offerings and/or cost-competitive homogeneous products.
- *Resource Efficiency Example:* Real income depends on the output of goods as compared to the resources used to produce them. The production possibilities curve shows that by specializing and trading, two countries can have more than they would without trade, thus optimizing global efficiency.
- *An Analogous Explanation of Comparative Advantage:* Would it make sense for the best physician in town, who also happens to be the most talented medical secretary, to handle all of the administrative duties of an office? No. The physician can maximize both output and income by working as a physician and employing a secretary. In the same manner, a country will gain if it concentrates its resources on the production of those products it can produce most efficiently.
- *Production Possibility Example:* A country can simultaneously have a comparative advantage and an absolute disadvantage in the production of a given product. Assume that the United States is more efficient than Sri Lanka in the production of both wheat and tea. However, the United States has a comparative advantage in wheat production. By concentrating on the product in which it has the greater advantage (wheat) and letting Sri Lanka produce the product in which

the U.S. is comparatively less efficient (tea), global output can be increased, and specialization and trade can benefit both countries.

Some Assumptions and Limitations of the Theories of Specialization

The theories of absolute and comparative advantage are based upon the economic gains from specialization, i.e., concentration on the production of a limited number of products. Each holds that specialization will maximize output and that subsequent trade will maximize consumer welfare. However, both theories make certain assumptions that may not always be valid.

- *Full Employment:* Both theories assume that resources are fully employed. When countries have many under-employed resources, they may seek to restrict imports in order to employ their own available workers and other assets.
- *Economic Efficiency Objective:* Countries often pursue objectives other than economic efficiency. *For example*, they may intentionally avoid overspecialization because of the vulnerability created by potential changes in technology and price fluctuations.
- *Division of Gains:* Although specialization does maximize output, it is unclear how those gains will be divided. If one country perceives a trading partner as receiving too large a share of the benefits, it may choose to forego its relatively small gains in order to prevent the other country from receiving large gains.

- *Two Countries, Two Commodities:* The world is comprised of multiple countries and multiple commodities. Nonetheless, the theories are still useful; economists have applied the same reasoning and demonstrated the economic efficiency advantages in multi-product and multi-country production and trade relationships.

- *Mobility:* Neither the assumption that resources can move domestically from the production of one good to another and at no cost, nor the assumption that resources cannot move internationally, is entirely valid. Nonetheless, domestic mobility is greater than the international mobility of resources. Clearly, the movement of resources such as labor and capital is an alternative to trade.
- *Statics and Dynamics:* Although the theories of absolute and comparative advantage consider gains at a given time (a static view), the relative conditions that surround a country's advantage or disadvantage are dynamic (constantly changing). Thus one cannot assume future advantages will remain constant.
- *Services:* Although the theories of absolute and comparative advantage were developed from the perspective of trade in commodities, much of the same reasoning can be applied to trade in services.

International Trade and Factor-Mobility Theory

Commodity movements and factor movements are substitutes. The absence of trade impediments implies commodity price equalization and, even when factors are Immobile, a tendency toward factor-price equalization. It is equally true that perfect factor mobility results in factor price equalization and, even when commodity movements cannot take place, in commodity price equalization.

There are two extreme cases between which are to be found the conditions in the real world: There may be perfect factor mobility but no trade, or factor immobility with unrestricted trade. The classical economists generally chose the special case where factors of production were internationally immobile.

Trade Impediments and Factor Movements

Under certain rigorous assumptions the substitution of commodity for factor movements will be complete. In a two-country two-commodity two factor model, commodity-price equalization is sufficient to ensure factor price equalization and factor-price equalization is sufficient to ensure commodity price equalization if:

- Production functions are homogeneous of the first degree (that is, if marginal productivities, relatively and absolutely, depend only on the proportions in which factors are combined) and are identical in both countries;
- One commodity requires a greater proportion of one factor than the other commodity at any factor prices at all points on any production function; and
- Factor endowments are such as to exclude specialization.

These assumptions permit us to isolate some important influences deter mining the pattern of international trade and factor flows and for present purposes will be

adhered to. The first task is to show that an increase in trade impediments encourages factor movements.

Factor mobility refers to the ability to move factors of production labor, capital, or land out of one production process into another. Factor mobility may involve the movement of factors between firms within an industry, as when one steel plant closes but sells its production equipment to another steel firm. Mobility may involve the movement of factors across industries within a country, as when a worker leaves employment at a textile firm and begins work at an automobile factory. Finally, mobility may involve the movement of factors between countries either within industries or across industries, as when a farm worker migrates to another country or when a factory is moved abroad.

Governmental Influence on Trade

The preceding case shows why and how automobile imports into the United States were restricted. This is not an atypical situation: No country in the world permits an unregulated flow of goods and services across its borders. Restrictions commonly are placed on imports and occasionally on exports. Direct or indirect subsidies frequently are given to industries to enable them to compete with foreign production either at home or abroad.

In general, governmental influence is exerted in an attempt to satisfy economic, social, or political objectives. Action to increase automobile workers' employment is an example of such an objective. Often, there are conflicting objectives (e.g., increased employment versus lower consumer prices of automobiles) and much disagreement as to the likely employment effects of trade policies (e.g., employment increases for auto workers versus possible decreases for workers in other industries if foreign countries retaliate against U.S. trade policies by restricting their imports of some U.S.-made products).

Not surprisingly, any proposal for changes in trade regulations results in heated debates among individuals and interest groups who believe that they will be affected. Of course, the interest groups that are most directly affected are most apt to speak up. People whose livelihood depends on U.S. automobile production (workers, owners, suppliers, and local politicians) perceive the losses from import competition to be very great. Workers see themselves as being forced to take new jobs in new industries, perhaps in new locales. They may experience prolonged periods of unemployment, reduced incomes, and insecure work and social surroundings. People threatened in this way are liable to become a very strong pressure group. Workers in an industry that is affected only indirectly by retaliation, such as the aircraft industry, do not readily perceive the same threat and are less vocal. Neither do consumers perceive the threat, although they must pay higher prices for both foreign and domestically made cars. Although the aggregate costs certainly are great, they are so diffused throughout society that consumers are not likely to join together to protest import limitations very vigorously.

Cross-National Cooperation and Agreements

There are some cross-national cooperation and agreements, such as:

1. Economic Integration

Approaches to economic integration may be:

- *Bilateral integration*: Two countries cooperate closely, usually in the form of tariff reductions
- *Regional integration*: A group of countries located in the same geographic proximity decide to cooperate, i.e. the European Union
- *Global integration*: Countries worldwide cooperate through the WTO

2. The World Trade Organization

- GATT: Predecessor to the WTO
- Most Favored Nation
- Dispute Settlement
- The Rise of Bilateral Agreements

Regional Economic Integration

- *Regional trade agreements*: Integration confined to a region and involving more than two countries
- Geographic proximity is an important reason for economic integration

Major Types of Economic Integration

- Free trade area
- no internal tariffs

- Customs union
- no internal tariffs plus common external tariffs
- Common market
- customs union plus factor mobility

3. Effects of Integration
   - Static Effects
   - Dynamic Effects
   - Trade Creation
   - Trade Diversion
   - Economies of Scale
   - Increased Competition

Major Regional Trading Groups
   - European Union
   - North American Free Trade Agreement
   - The Americas: CARICOM, MERCOSUR, CAN, LAIA
   - ASEAN
   - APEC
   - The African Union

4. European Union
   - Predecessors
   - Organizational Structure
   - The Single European Act
   - Monetary Union
   - Expansion
   - Bilateral Agreements

5. How to Do Business with the EU
   - *Implications for Corporate Strategy*: Companies need to determine where to produce products
   - Companies need to determine that their entry strategy will be companies need to balance the commonness of the EU with national differences

6. NAFTA Rational
   - US – Canadian trade is the largest bilateral trade in the world: The US is Mexico' and Canada's largest trading partner

6.2 WORLD FINANCIAL ENVIRONMENT

International financial management requires an understanding of cultural, historical, and institutional differences such as those affecting corporate governance. Although both domestic firms and MNEs are exposed to foreign exchange risks, MNEs alone face certain risks that are not normally a threat to domestic operations such as political risks.

6.2.1 Global Foreign-exchange Markets

The markets, in which participants are able to buy, sell exchange and speculate on currencies. Foreign exchange markets are made up of banks, commercial companies, central banks, investment management firms, hedge funds, and retail forex brokers and investors. The forex market is considered to be the largest financial market in the world.

The **exchange rate** measures the external value of sterling in terms of how much of another currency it can buy.

Currencies are traded around the world in a truly global market. The scale of currency transactions is enormous. In London alone over $450 billion worth of currency is bought and sold each day with London easily the largest FOREX market in the world.

Exchange rate is the rate at which one currency trades against another on the foreign exchange market.

How many dollars you can buy with 1000. The daily value is determined in the foreign exchange markets (FOREX) where billions of $s of currencies are traded every hour.

6.2.2 The Determination of Exchange Rates

Numerous factors determine exchange rates, and all are related to the trading relationship between two countries. Remember, exchange rates are relative, and are expressed as a comparison of the currencies of two countries. There are some of the principal determinants of the exchange rate between two countries. These factors are in no particular order; like many aspects of economics, the relative importance of these factors is subject to much debate.

Differentials in Inflation

As a general rule, a country with a consistently lower inflation rate exhibits a rising currency value, as its purchasing power increases relative to other currencies. During the last half of the twentieth century, the countries with low inflation included Japan, Germany and Switzerland, while the U.S. and Canada achieved low inflation only later. Those countries with higher inflation typically see depreciation in their currency in relation to the currencies of their trading partners. This is also usually accompanied by higher interest rates.

Export means shipping the goods and services out of the port of a country.

Differentials in Interest Rates

Interest rates, inflation and exchange rates are all highly correlated. By manipulating interest rates, central banks exert influence over both inflation and exchange rates, and changing interest rates impact inflation and currency values. Higher interest rates offer lenders in an economy a higher return relative to other countries. Therefore, higher interest rates attract foreign capital and cause the exchange rate to rise. The impact of higher interest rates is mitigated, however, if inflation in the country is much higher than in others, or if additional factors serve to drive the currency down. The opposite relationship exists for decreasing interest rates that is; lower interest rates tend to decrease exchange rates.

Current-account Deficits

The current account is the balance of trade between a country and its trading partners, reflecting all payments between countries for goods, services, interest and dividends. A deficit in the current account shows the country is spending more on foreign trade than it is earning, and that it is borrowing capital from foreign sources to make up the deficit. In other words, the country requires more foreign currency than it receives through sales of **exports**, and it supplies more of its own currency than foreigners demand for its products. The excess demand for foreign currency lowers the country's exchange rate until domestic goods and services are cheap enough for foreigners, and foreign assets are too expensive to generate sales for domestic interests.

Public Debt

Countries will engage in large-scale deficit financing to pay for public sector projects and governmental funding. While such activity stimulates the domestic economy, nations with large public deficits and debts are less attractive to foreign investors. The reason? A large debt encourages inflation, and if inflation is high, the debt will be serviced and ultimately paid off with cheaper real dollars in the future.

In the worst case scenario, a government may print money to pay part of a large debt, but increasing the money supply inevitably causes inflation. Moreover, if a government is not able to service its deficit through domestic means (selling domestic bonds, increasing the money supply), then it must increase the supply of securities for sale to foreigners, thereby lowering their prices. Finally, a large debt may prove worrisome to foreigners if they believe the country risks defaulting on its obligations. Foreigners will be less willing to own securities denominated in that currency if the risk of default is great. For this reason, the country's debt rating is a crucial determinant of its exchange rate.

REMEMBER

Though according to the current exchange rate 10 euros should purchase 1,000 yen, it may actually require 12 euros to get 1,000 yen.

Terms of Trade

A ratio comparing export prices to import prices, the terms of trade is related to current accounts and the balance of payments. If the price of a country's exports rises by a greater rate than that of its imports, its terms of trade have favorably improved. Increasing terms of trade shows greater demand for the country's exports. This, in turn, results in rising revenues

from exports, which provides increased demand for the country's currency (and an increase in the currency's value). If the price of exports rises by a smaller rate than that of its imports, the currency's value will decrease in relation to its trading partners.

Political Stability and Economic Performance

Foreign investors inevitably seek out stable countries with strong economic performance in which to invest their capital. A country with such positive attributes will draw investment funds away from other countries perceived to have more political and economic risk. Political turmoil, *for example*, can cause a loss of confidence in a currency and a movement of capital to the currencies of more stable countries.

6.2.3 Global Strategy, Structure, and Implementation

Global strategy leads to a wide variety of business strategies, and a high level of adaptation to the local business environment. The challenge here is to develop one single strategy that can be applied throughout the world while at the same time maintaining the flexibility to adapt that strategy to the local business environment when necessary. A global strategy involves a carefully crafted single strategy for the entire network of subsidiaries and partners, encompassing many countries simultaneously and leveraging synergies across many countries.

The Strategy of International Business

Two misconceptions underlie the common approach among managers and the consultants who advise them regarding the nature of international business strategy. The first is

that it is essentially like strategy in general, multiplied across countries. Hence, it does not require specific attention. This is a misleading conception on several grounds. For one, international activity raises issues that do not arise in a single-country context. A notable illustration of these is the need to deal with foreign stakeholders in foreign countries, including consumers, employees, and governments. Furthermore, international activity complicates issues that arise in a domestic context. For instance, the choice of location and the geographic spread of activities are arguably more compounds in an international context due to the multiplicity and heterogeneity of the possibilities available. Moreover, even when the issues themselves are similar to those that managers confront in a single-country context such as competition, competitive advantage, pricing strategy and the like in international business their character, and the responses they demand, differ, a result of the multiple countries in which firms operate and the differences among them.

The second misconception that underlies the common approach towards international business strategy is that it is about overcoming challenges that operations in foreign, unfamiliar environments raise, as well as those that result from the need to coordinate activities across multiple countries. By far most managerial attention is devoted to means of addressing these challenges. Limited attention is paid to the opportunities that international activity offers, by taking advantage of similarities and differences across countries. The former affords scale and scope, whereas the latter provides access to multiple and varied resources, learning opportunities, and the ability to arbitrage them across countries.

These two misconceptions are inappropriate and perilous. The first undermines managers attention to the distinctive strategic responses required in international business; the second distracts them from considering the opportunities to create value via international activity. Not surprisingly, for many companies, a significant proportion of their international operations subtracts, rather than adds economic value. Managers the world around admit that one of their biggest concerns in the contemporary business environment is managing effectively their international operations.

Country Evaluation and Selection

In choosing geographic sites, a firm must determine both where to market and where to produce. The answer can be one and the same place if transportation costs are high and/or government regulations make local production a necessity. In many industries, facilities must be located near foreign customers; in others, market and production sites are continents away. Developing a site location strategy that helps a firm maximize its resources and competitive position is very challenging, given that many estimates and assumptions about factors such as future costs and prices and competitors' reactions must be made.

Scanning is useful insofar as a company might otherwise consider either too few or too many possibilities. Through the use of scanning, decision makers can perform a detailed analysis of a manageable number of geographic locations.

To evaluate and compare countries, scanning techniques based on broad environmental variables that identify both opportunities and risks should be used. Ultimately, variables must be weighed against each other to effectively evaluate the potential success of a particular venture and to compare various ventures.

Opportunities

Opportunities are determined by competitiveness and profitability factors. Variables weighing heavily on the selection of market and production sites would include market size, ease and compatibility of operations, costs, resource availability and red tape.

- *Market Size:* Market size is determined by sales potential. In some instances, past and current sales for either an existing product or a similar or complementary product are available on a country-by-country basis. In addition, data such as GNP, per capita income, population, income distribution, economic growth rates and levels of economic development will also be useful.
- *Ease and Compatibility of Operations*: Companies are naturally attracted to countries that are located nearby, share the same language and offer market conditions similar to those in their home countries. Beyond that, proposals may then be limited to those countries that offer, among other factors, the appropriate plant size, the local availability of resources, an acceptable percentage of ownership and the sufficient repatriation of profits. However, the more time, money and energy a firm expends in examining a particular alternative, the more likely it is to accept it, regardless of its merits. This situation is known as the escalation of commitment. Feasibility studies should have clear decision points that prevent such a situation from occurring.
- *Costs and Resource Availability:* Costs are a critical factor in production-location decisions. Productivity-related factors include the cost of labor, the cost of inputs, tax rates, and available capital, utilities, real estate and transportation. Often firms need to be located near suppliers and customers in an area where infrastructure will allow them to move supplies and finished products very efficiently. If a given production site will be used to serve multiple markets, the cost and ease of moving materials and products in and out the country will be especially important.
- *Red Tape:* Red tape (disincentives) includes the difficulty of getting permission to operate, bringing in expatriate personnel, obtaining licenses to produce and market goods and satisfying government agencies on matters such as

taxes, labor conditions and environmental compliance. Although not a directly measurable cost, red tape increases the cost of doing business.

Risks

Is it ever rational for a firm to invest in a country with high economic and political risk ratings? Such questions must be carefully weighed when making international capital-investment decisions.

- *Risk and Uncertainty:* Firms usually experience higher risk and uncertainty when they operate abroad. In fact, the liability of foreignness refers to the fact that foreign firms have a lower rate of survival than local firms for the initial years after the start of operations. However, those foreign firms that manage to overcome their initial problems have long-term survival rates comparable to those of local firms. Firms use a variety of financial techniques to compare potential investments, including discounted cash flows, economic value added, payback period, net present value, return on sales, return on equity, return on assets employed, and internal rate of return and the accounting rate of return. Given the same expected return, most decision makers prefer a more certain outcome to a less certain one. Often firms may choose to reduce risk through some form of insurance. As part of a feasibility study, the degree of acceptable risk should be determined so a firm does not incur unacceptable costs.
- *Competitive Risk:* A firm's innovative advantage may be short-lived, particularly if a country offers little protection with respect to intellectual property rights. When pursuing a strategy known as imitation lag, a firm moves first to

those countries most likely to adapt and catch up to the advantage. In some instances firms may seek those countries where they are least likely to confront significant competition; in others they may gain advantages by moving into countries where competitors are already present. Firms may also seek "clusters" like Silicon Valley that attract multiple suppliers, customers and highly trained personnel in order to gain access to new products, technologies and markets.

- *Monetary Risk:* If a firm's expansion occurs through foreign-direct investment, foreign-exchange rates and access to investment capital and earnings are key considerations. Liquidity preference refers to the theory investors want some of the holdings to be in highly liquid assets on which they are willing to take a lower return. Firms must carefully evaluate a country's present capital controls, recent exchange-rate stability, balance-of-payments account, inflation rate and level of government spending.
- *Political Risk:* Political risk reflects the expectation the political climate in a given country will change in such a way that a firm's operating position will deteriorate. It relates to changes in political leaders' opinions and policies, civil disorder and animosity between a home and host country. When evaluating political risk, decision makers refer to past patterns in a given country, expert opinions and country analysts. They also look for economic and social conditions that could lead to political instability, but there is no consensus as to what constitutes dangerous instability or how it can be predicted.

REMEMBER

The costs of data collection should always be weighed against the probable payoffs in terms of revenue gains or cost savings.

Problems with Research Results and Data

Numerous countries have agreed to standards for collecting and publishing various categories of national data. However, the lack, obsolescence and inaccuracy of data on other countries can make research difficult and expensive to undertake. Further, data discrepancies further increase uncertainty in decision-making.

- *Reasons for Inaccuracies:* For the most part, incomplete or inaccurate data result from the inability of governments to collect the needed information. Both economic and educational factors will affect the quantity and quality of available data. Of equal concern, however, is the publication of false or purposely misleading information, as well as the non-reporting or under-reporting of information people wish to hide or distort.
- *Comparability Problems:* Comparability problems result from definitional differences across countries (e.g., family categories, literacy levels, accounting rules), differences in base years, distortions in foreign currency conversions, the measurement of investment flows, the presence of black market activities, etc.

External Sources of Information

Both the specificity and cost of information will vary by source.

- *Individualized Reports:* Market research and business consulting firms conduct country studies for a fee. The fact that a firm can specify the information it wants may make the cost worthwhile.
- *Specialized Studies*: Certain research organizations generate specific studies about countries, regions, industries, issues, etc., that they make available for general purchase. The price is much lower than for an individualized study.
- *Service Companies:* Most international service-related firms publish reports that are usually geared toward either the conduct of business in a given country or region or about some specific subject of general interest, such as tax or trademark legislation.
- *Government Agencies:* Governments and their agencies publish tomes of information designed to stimulate business activity both at home and abroad.
- *International Organizations and Agencies:* The United Nations, the World Trade Organization, the International Monetary Fund, the World Bank (IBRD) and the Organization for Economic Cooperation and Development are but a few of the multilateral organizations and agencies that collect and disseminate data. Many of the international development banks even help fund investment feasibility studies.
- *Trade Associations:* Many trade associations collect evaluate and disseminate a wide variety of data dealing with competitive and technical factors in their industries. Their reports may or may not be available to non-members.
- *Information Service Companies:* Certain companies offer information-retrieval services; they maintain databases from hundreds of sources from which they will access data for a fee.

- *The Internet:* The quantity of information available via the Internet is increasingly extensive. As with other sources, a researcher must be concerned about the reliability and validity of information gathered from Internet sources.

Internal Generation of Data

When firms have to conduct studies in foreign countries, they may find traditional data gathering and analytical methods do not reveal critical insights. In that case, a researcher must be extremely imaginative and observant. In some instances, useful information may be found by analyzing indirect or complementary indicators.

Export and Import Strategies

A firm's choice of entry mode depends on various factors, such as the ownership advantages of the firm, the location advantages of the market and the internalization advantages of specific assets, international experience and/or the ability to develop differentiated products. In general, firms that possess few ownership advantages either do not enter foreign markets, or they use the lower-risk entry modes of exporting and licensing. Still in all, the decision to export must fit a company's overall strategy and take into account global concentration (the presence of relatively few major players), global synergies (the gains from sharing corporate expertise on a global basis) and global strategic motivations (the firm's competitive reasons to enter a given market).

Characteristics of Exporters

Research conducted on the characteristics of exporters has resulted in two basic conclusions:

- The probability of exporting increases with size of company revenues
- Export intensity (the percentage of total revenues generated by exports) is not positively correlated with company size.

Factors such as the risk profile of management and the nature of industry competition are just as important as firm size.

Why Companies Export

Companies export in order to increase sales revenues, achieve economies of scale in production, diversify markets and minimize risk.

Stages of Export Development

Firms tend to move through three phases of export development: pre-engagement, initial exporting and advanced exporting. As they do so, they tend to:

- Export to more countries
- Expect exports to grow as a percentage of total sales.

In addition, they also tend to:

- Diversify their markets to more distant countries
- Move into environments that are increasingly different from those of their home countries.

Potential Pitfalls of Exporting

The operational mistakes associated with exporting can be very costly. In addition, events such as 9/11 can bring international trade activities to a complete halt in the affected region.

Designing an Export Strategy

To design an effective export strategy, managers must:

- assess the company's export potential
- obtain expert counseling on exporting
- select target markets
- Formulate and implement an effective export strategy.

The import process involves strategic and procedural issues that basically mirror those of the export process. There are two basic types of imports: extra-company imports from independent (unrelated) upstream sources and intra-company imports from a firm's upstream global supply chain that represent intermediate goods and services. The three basic types of importers are those that:

- look for any product around the world that will generate a positive cash flow
- look to foreign sourcing as a means to minimize product costs
- Use foreign sourcing as part of their global supply chain strategy.

An import broker is a certified specialist who obtains required government permissions and other clearances before forwarding the necessary documents to the carrier(s) of the goods.

The Role of Customs Agencies

Customs reflect a country's import and export procedures and restrictions. The primary duties of a customs agency are the assessment and collection of all duties, taxes and fees on imported products, the enforcement of customs and related laws and the administration of certain navigation laws and treaties.

National customs agencies are increasingly involved in dealing with smuggling operations and preventing foreign terrorist attacks. A **customs** broker can help an importer minimize duties by:

- Valuing products in such a way that they qualify for more favorable treatment
- Qualifying for duty refunds through drawback provisions
- Deferring duties by using bonded warehouses and foreign trade zones
- Limiting liability by properly marking an import's country of origin.

KEYWORD

Customs is an authority or agency in a country responsible for collecting customs duties and for controlling the flow of goods, including animals, transports, personal effects, and hazardous items, into and out of a country.

Import Documentation

The import documentation process can be both complicated and cumbersome. Without proper documentation, customs agencies will not release shipments. Documents are of two types:

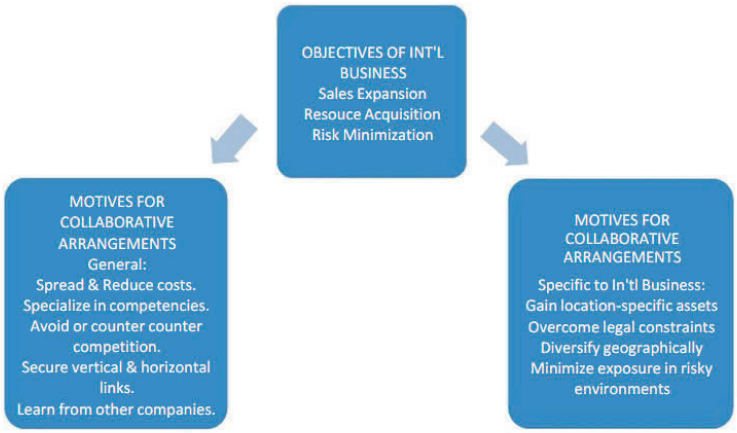
- Those that determine whether customs will release the shipment
- Those that contain the information necessary for duty assessment and data gathering purposes. At a minimum, the required documents would include an entry manifest, a commercial invoice and a packing list.

Direct Investment and Collaborative Strategies

Companies may find more advantages by producing in foreign countries than by exporting to them. The advantages occur under six conditions:

- When production abroad is cheaper than at home.
- When transportation cost to move goods or services internationally are too expensive.
- When companies lack domestic capacity.
- When products and services need to be altered substantially to gain sufficient consumer demand abroad.
- When governments inhibit the import of foreign products.
- When buyers prefer products originating from a particular country

Why Companies Collaborate?



Types of Collaborative Arrangements:

Licensing

Under licensing agreement, a company (the licensor) grants rights to intangible property to another company (the licensee) to use in a specified geographic area for a specified period. In exchange, the licensee ordinarily pays a royalty to the licensor. The rights may be for an exclusive license (the licensor) can give rights to no other company for the specified geographic area for a specified period of time) or nonexclusive (it can give away rights).Often, governments classify intangible property into these five categories:

- Patents, inventions, formulas, processes, designs, patterns

- Copyrights for literary, musical, or artistic compositions
- Trademarks, trade names, brand names
- Franchises, licenses, contracts
- Methods, programs, procedures, system

The Benefit of Licensing for Licensors

The key benefit for a licensor is the ability to exploit and enhance its brand or property. Licensing can do this by:

- increasing its brand presence at retail or distribution outlet
- creating further brand awareness to support its core products or services
- supporting and enhancing its core values by associations with the licensed products/service or category (e.g. association with a healthy food or with a cutting edge mode of fashion)
- entering new markets (consumer or geographical) which were unfeasible with it is
- own resources or capabilities
- generating new revenue streams, often with little involvement or additional financial or other resource implications

The Benefit of Licensing for Licensees

The key benefit for a licensee (especially manufacturer or retailer) is the ability to significantly increase consumer interest in and sales of its products or services. Licensing can do this by:

- transferring the values and consumer favor towards the property to the licensed product or service
- providing added value and differentiation from competitive offerings
- providing additional marketing support or momentum from the core property's activity provided by the licensor
- appealing to new target markets who have not historically been interested in a licensee's product or service
- giving credibility for moving into new market sectors through product extension
- gaining additional retail space and favor

The Organization of International Business

Organizational challenges abound in this era of globally dispersed resources and operations. International managers must create structures, systems, and a culture that

will effectively implement their company's strategies around the world. Formulating the appropriate strategy is merely the first step of a long process that includes crafting an organization that will work to implement that strategy.

In the past, structuring the organization was thought to be merely a matter of reorganizing the lines and boxes of the formal organizational chart. In times of rapid change, however, it is necessary to jumpstart the development of knowledge-generating and decision-making relationships rather than to wait for them to form according to the prescribed organizational chart.

Companies seek to develop a complementary mix of structure, coordination and control systems, and organizational culture in order to thrive in the face of significant environmental and workplace changes. Flexibility is fostered in many organizations through the use of cross-functional task forces, dual reporting relationships, informal networking, and incentive compensation tied to group performance.

6.3 MANAGING INTERNATIONAL OPERATIONS

The world has never been more interconnected, dynamic, and globalized. This global competitive playground brings along both new opportunities and inescapable challenges for every business manager. Recently, the global economic downturn has forced many companies to reduce operational costs, leverage risk, and seek new markets by internationalizing their operations. In the midst of it all stands the operations and supply chain managers. Managing international operations is an essential knowledge area for any large corporation, and increasingly important for small and medium sized enterprises (SMEs).

- The internationalization of operations can take different forms and lead to the development of new configurations like international distribution systems, a network of global suppliers, and offshore manufacturing. Companies are increasingly internationalized through their integration in value chains that spread far beyond national borders. The internationalization process is one of the most difficult decisions to make, since it implies numerous risks. In particular this holds true for SMEs, which have limited resources.

6.3.1 Marketing Globally

Usually, selling focuses on the needs of the seller, marketing on the needs of the buyer. The purpose of business is to get and keep a customer. Or, to use Peter Drucker's more refined construction to create and keep a customer. (Through product differentiation and price competition) International marketing involves the marketing of goods and services outside the organization's home country. Multinational marketing is a complex form of international marketing that engages an organization in marketing operations in many countries. Global marketing refers to marketing activities coordinated and integrated across multiple markets.

A firm's overseas involvement may fall into one of several categories:

- *Domestic*: Operate exclusively within a single country.
- *Regional Exporter:* Operate within a geographically defined region that crosses national boundaries. Markets served are economically and culturally homogenous. If activity occurs outside the home region, it is opportunistic.
- *Exporter:* Run operations from a central office in the home region, exporting finished goods to a variety of countries; some marketing, sales and distribution outside the home region.
- I*nternational*: Regional operations are somewhat autonomous, but key decisions are made and coordinated from the central office in the home region. Manufacturing and assembly, marketing and sales are decentralized beyond the home region. Both finished goods and intermediate products are exported outside the home region.
- *International to Global:* Run independent and mainly self-sufficient subsidiaries in a range of countries. While some key functions (R&D, sourcing, financing) are decentralized, the home region is still the primary base for many functions.
- *Global:* Highly decentralized organization operating across a broad range of countries. No geographic area (including the home region) is assumed a priori to be the primary base for any functional area. Each function including R&D, sourcing, manufacturing, marketing and sales is performed in the location(s) around the world most suitable for that function

6.3.2 Global Manufacturing and Supply Chain Management

Globalization is one of those politically charged a word that often implies more than it actually means. From the relatively benign "the world is flat" philosophy that suggests offshore factories help stimulate U.S. imports, to the "offshoring costs American jobs" idea that everything can and should be made in the United States, everybody in manufacturing has an opinion on whether globalization is good or bad for their companies and/or their fellow citizens.

There's nothing very new about globalization, though, a concept that basically refers to the practice of sourcing, manufacturing, transporting and distributing products outside of your native country. Its modern application predates the rise of the Internet by a good 40 years, beginning in the early 1950s when container shipping was introduced, making it possible to quickly, efficiently and economically move entire container loads onto ocean vessels at ports of call throughout the world.

The supply chain system must be responsive to customer requirements.

6.3.3 International Accounting Issues

The recent changes in accounting rules have been fuelled by a combination of actions and events which have undoubtedly left a distinct mark on the accounting profession. Accounting and auditing practitioners will need to be aware of these changes and to assess the extent to which these will affect them during the course of their work.

- *Fair Value Measurement:* Most practitioners will be aware of the number of inconsistencies in the determination and the disclosure of fair value measurements under current IFRS. These inconsistencies have led to diversity in practice and to a lack of comparability.
- *Control*: Some practitioners might be of the view that the assessment of control is principally a matter of determining whether an investor has a majority equity holding in an investee. While this assessment can sometimes be conclusive for relatively simple structures, IFRS require entities to make a more detailed assessment based on substance.
- *Joint Arrangements:* Most practitioners will be familiar with the current accounting policy choice for jointly controlled entities. The new IFRS 11 eliminates this choice and revises the classification of joint arrangements.
- *Business Combinations:* The current version of IFRS 3 Business Combinations was revised in 2008. The accounting treatment of business combinations includes identifying whether the transaction falls within the scope of IFRS 3, identifying the acquirer, measuring the consideration transferred and the assets acquired and the liabilities assumed and calculating goodwill and any non-controlling interests.
- *Financial Risk Disclosures*: IFRS 7 addresses the disclosures that need to be made by an entity in connection with its financial risks. The extent of an entity's disclosure depends on the nature of its financial instruments and the extent of the risks to which it is exposed. The financial risks which are addressed by this Standard include credit risk, liquidity risk and market risk.
- *Accounting Issues Applicable to Investment Funds:* The fund industry faces certain accounting issues that are less prevalent in other industries. In particular, the recent amendment entitled Investment Entities requires a parent that is an investment entity to measure its investments in particular subsidiaries at fair value through profit or loss rather than consolidating those subsidiaries in its financial statements. This is an important change in perspective, aligning more closely to the typical user needs of this industry's financial statements.
- *Impairment Considerations*: Impairment considerations are mainly addressed by IAS 36 Impairment of Assets. This Standard focuses on the term "recoverable amount" and the level at which that amount needs to be determined. It requires entities to recognize an impairment loss to the extent that the carrying amount of an item (or a group of items) exceeds that item's (those items') recoverable amount.
- *Deferred Tax:* Accounting for deferred tax is typically another relatively challenging topic. In terms of IAS 12 Income Taxes, entities are required to recognize a deferred tax liability or asset (with certain limited exceptions) to the extent that it is probable that recovery or settlement of the carrying

amount of an asset or a liability will make future tax payments larger or smaller than they would be if such recovery or settlement were to have no tax consequences.

6.3.4 The Multinational Finance Function

Financial management is mainly concerned with how to optimally make various corporate financial decisions, such as those pertaining to investment, capital structure, dividend policy, and working capital management, with a view to achieving a set of given corporate objectives.

In Anglo-American countries as well as in many advanced countries with well-developed **capital markets**, maximizing shareholder wealth is generally considered the most important corporate objective. Why do we need to study "international" financial management? The answer to this question is straightforward: We are now living in a highly globalized and integrated world economy. American consumers, *for example*, routinely purchase oil imported from Saudi Arabia and Nigeria, TV sets and camcorders from Japan, Italy, and wine from France. Foreigners, in turn, purchase American-made aircraft, software, movies, jeans, wheat, and other products. Continued liberalization of international trade is certain to further internationalize consumption patterns around the world.

Recently, financial markets have also become highly integrated. This development allows investors to diversify their investment portfolios internationally.

KEYWORD

Capital Markets are financial markets for the buying and selling of long-term debt or equity-backed securities.

Human Resource Management

Human Resource Management is the process of recruitment, selection of employee, providing proper orientation and induction, providing proper training and the developing skills, assessment of employee (performance of appraisal), providing proper compensation and benefits, motivating, maintaining proper relations with labor and with trade unions, maintaining employee's safety, welfare and health by complying with labor laws of concern state or country.

Altogether, human resource management is the process of proper and maximizes utilization of available limited skilled workforce. The core purpose of the human resource management is to make efficient use of existing human resource in the organization. The Best example at present situation is, construction industry has been facing serious shortage of skilled workforce. It is expected to triple in the next decade from the present 30%, will negatively impact the overall productivity of the sector, warn industry experts.

Every organization's desire is to have skilled and competent people to make their organization more effective than their competitors. Humans are very important assets for the organization rather than land and buildings, without employees (humans) no activity in the organization can be done. Machines are meant to produce more goods with good quality but they should get operated by the human only.

ROLE MODEL

THE REAL KEY TO MAKING MONEY IN STOCKS IS NOT TO GET SCARED OUT OF THEM: PETER LYNCH

Peter Lynch, born January 19, 1944 is an American businessman and stock investor. As part of his role at Fidelity Investments, he managed the Magellan Fund between 1977 and 1990 averaging a 29% return, making it the best 20-year return of any mutual fund over the period. He also co-authored a number of books and papers on investing and coined a number of well-known mantras of modern individual investing strategies, such as Invest in what you know and ten bagger.

Lynch graduated from Boston College in 1965 with a degree in finance. He served two years in the military before attending and graduating from the Wharton School at the University of Pennsylvania with a Master of Business Administration in 1968.

He went to work for Fidelity Investments as an investment analyst, eventually becoming the firm's director of research, a position he held from 1974 to 1977. Lynch was named manager of the little known Magellan Fund in 1977 and achieved historic portfolio results in the ensuing years until his retirement in 1990.

In 2007, Peter Lynch was serving as vice-chairman of Fidelity's investment adviser, Fidelity Management & Research Co. Since his retirement, he has been an active participant in a variety of philanthropic endeavors.

His philosophy is a simple one. He would look to the marketplace for great products or great executions, and buy those stocks. He did not wring his hands and study P/E ratios and look for mathematical anomalies. He is known to have said: "Everyone has the brainpower to follow the stock market. If you made it through fifth-grade math, you can do it."

Investors who understand that timing the market is a loser's game will be less prone to reacting to short-term extremes in the market and more likely to adhere to their long-term investment plan.

Great investors throughout history have understood that building long-term wealth requires the ability to control one's emotions and avoid self-destructive investor behavior. Though each of these great investors offers perspective on a distinct topic, the common theme is that a disciplined, patient, unemotional investment approach is required to reach your long-term financial goals.

There is so much to learn from Peter Lynch. He has had such an incredible journey from a mere Golf Caddy to a Millionaire and stock market genius. By following his style of investing, the investors can eliminate the risk factors and learn to come out of critical situations. Peter Lynch coined some popular mantras of modern investing strategies. His most famous principle is: 'Invest in what you know,' popularizing the economic concept of 'local knowledge.'

SUMMARY

- International and global management is concerned with the techniques and practices that are involved in directing and controlling international organizations.
- Multinational enterprises (MNEs) like Swire must operate in countries with different political and legal conditions.
- The economic environment consists of external factors in a business' market and the broader economy that can influence a business.
- Globalization is an often-discussed but seldom-defined phenomenon. At a broad level, globalization is an increase in the impact on human activities of forces that span national boundaries.
- Foreign trade is an age-old phenomenon. It examines many of the descriptive and prescriptive theories associated with this process.
- International financial management requires an understanding of cultural, historical, and institutional differences such as those affecting corporate governance.
- Financial management is mainly concerned with how to optimally make various corporate financial decisions, such as those pertaining to investment, capital structure, dividend policy, and working capital management, with a view to achieving a set of given corporate objectives.
- Human resource management is the process of proper and maximizes utilization of available limited skilled workforce.

KNOWLEDGE CHECK

1. Which of the following statements about culture is FALSE?

a. People simultaneously belong to different cultures.

b. There is no universally satisfactory definition of the domain of a culture.

c. Cultures are dynamic because individual and group attitudes evolve.

d. Membership in a culture is an ascribed attribute.

2. Which of the following statements is FALSE regarding cultural awareness?

a. Businesspeople can be expected to memorize all cultural variations for every country.

b. Making a cultural mistake may be construed by foreign businesspeople as ignorance or rudeness.

c. Guidebooks about culture exist for particular geographical areas, based on the experiences of many successful international managers.

d. Wide variations exist among cultures even in how to address people.

3. Which of the following statements about cultural awareness is TRUE?

a. A company must have a consistent degree of awareness during the course of its operations.

b. Not all companies have the same degree of cultural awareness.

c. A company that is new to international business may need only a minimal level of cultural awareness.

d. A highly entrenched company needs a high level of awareness because of its multifunctional operations in multiple countries.

4. Managers must carefully assess the information they gather about national cultures because of all the following reasons EXCEPT:

a. information sometimes presents unwarranted stereotypes

b. information, although accurate, may assess only a segment of the particular country

c. it is always expensive and inaccurate

d. reports may give outdated information

5. Which of the following is FALSE regarding the nation as a point of reference when examining cultures?

a. The laws governing business operations apply largely along national lines.

b. National identity is perpetuated through rites and symbols of the country.

c. The shared attributes of rites and symbols of a country suggest that each country is unique in all respects.

d. Nations usually include various subcultures, ethnic groups, races, and classes.

REVIEW QUESTIONS

1. What is global management? Explain its scope.
2. Explain the world financial environment.
3. Describe the determination of exchange rates.
4. Explain the global manufacturing and supply chain management.
5. Write the short note on:
   a. International Accounting Issues
   b. Managing International Operations

CHECK YOUR RESULT

1. (d) 2. (a) 3. (b) 4. (c) 5. (c)

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INDEX

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Level: Beginner to Advanced
Subject: Business

Purchasing & Supply Chain Management

Purchasing and supply chain management focuses on the fundamental aspects of the supply/value chain, including methods to improve how organizations find the materials and services needed to make a product or service and deliver it to customers. Supply chain management (SCM) encompasses the management of all activities involved in sourcing, procurement, production, logistics and customer relations. It also includes the crucial components of coordination and collaboration with channel partners, which can be suppliers, intermediaries, third-party service providers, and customers. SCM practice draws heavily from the areas of industrial engineering, systems engineering, operations management, logistics, procurement, information technology, and marketing and strives for an integrated approach. Marketing channels play an important role in supply chain management.

Key features:

- Provide an understanding of business management as well as the opportunity to specialize in the purchasing and supply chain management functions of business.
- Topics are logically arranged according to the course outline of the subject.
- The use of simple language to facilitate a better understanding of each chapter.
- Illustrative examples of varying difficulties, wherever needed, are presented to enhance the interest of students.
- The provision of knowledge check test for each chapter is given at the end of chapter to strengthen the learning process of students.
- Case Study, Role Model, Keywords, and Examples are also provided to enrich the knowledge of students.

The Book comes with a companion DVD for rich learning experience, which includes:

1. E-Book with further reading and learning links
2. Interactive E-lecture of each chapter. E-lectures are expressive, informational, entertaining and persuasive, it uses the tool of self-exploration, which makes it easy to learn and understand each topic in detail. It is very informative as concrete details are provided and also entertaining, as graphics and other visuals are provided to make the learning process more interactive..
3. Video Lecture of each chapter, which explains each topic in detail with examples, animations, images and text and makes it easy to understand the topics in easier, simpler and better way.
4. Huge Database of Interactive Assessments for each chapter, which is also printable
5. Further reading and learning links for each topic
6. Glossary and Notes for each chapter to understand each chapter with to the point information
7. The DVD also includes a printable workbook, which walks through with a various sets of questions and choices and assists in completing the curriculum. The workbook covers; Learning Objectives, Essential Concepts, Matching Definitions, Study Problem, Questions, Fill in the Blanks and Answers.
8. Review Questions for each chapter are also given in the DVD, which are also printable

The DVD is also a useful tool for teachers to teach with digital resources in classroom and do a great job of illustrating skills and techniques that are otherwise difficult to explain.

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