

DIPLOMA IN PROCUREMENT SUPPLY CHAIN MANAGEMENT

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**FINAL EXAM QUESTIONs**

1. Outline the phases and processes of operation research study. What are its limitation.
2. Explain ways in which purchasing, and supply performance measurement may enhance productivity of an organization.
3. Purchasing and supply management differ from each other in their focus and scope. Explain pointing out the difference between the two.
4. Discuss the four principles that might guide a supply chain manager.
5. Explain the circumstances under which the supplier bargaining power may be higher than the buyers.
6. Highlight five strategic issues in purchasing and supply that may be put in place to ensure value of money without sacrificing the environment.
7. What is the difference between a purchase order and purchase requisition. Prepare a standard purchase requisition form with all the entries filled.
8. Identify and briefly explain some important documents that Purchasing departments should have a record of.
9. Identify and explain some of the attributes to look for when choosing a supplier.
10. What is inventory management. What is the importance of keeping an inventory in an organization. Identify the different types of inventory.
11. Outline the phases and processes of operation research study. What are its limitation.

**Answers;**

According to the Operational Research Society of Great Britain (Operation Research Quarterly, l3(3):282, l962), Operational Research is the attack of modern science on complex problems arising in the direction and management of large systems of men, machines, materials and money in industry, business, government and defense. Its distinctive approach is to develop a scientific model of the system, incorporating measurements of factors such as change and risk, with which to predict and compare the outcomes of alternative decisions, strategies or controls. The purpose is to help management determine its policy and actions scientifically. Randy Robinson stresses that Operations Research is the application of scientific methods to improve the effectiveness of operations, decisions and management. By means such as analyzing data, creating mathematical models and proposing innovative approaches, Operations Research professionals develop scientifically based information that gives insight and guides decision making. They also develop related software, systems, services and products.

**Phase and process of operation research**

**1.Defining the problem and collecting data**

The first job is to analyze the relevant system and formulate a well-defined statement for the problem. This comprises determining appropriate objectives, interrelationships, limitations and alternative course of action.

The OR team generally works in an advisory capacity. The team carries out a thorough technical analysis of the problem and then provides suggestions and recommendations to the management.

Ascertaining the appropriate objectives is a highly significant aspect of problem definition. Some of the objectives contain maintaining stable price, increasing the share in market, profits, enhancing work morale etc.

OR team normally spends large amount of time in collecting important data.

To get precise understanding of problem

To give input for next phase.

OR teams' takes use of Data mining methods to find large databases for interesting patterns that may direct to useful decisions.

**2.Creating a mathematical model**

This phase is to recreate the problem in mathematical symbols and expressions. The mathematical model of any business problem is described as the organization of equations and other related mathematical expressions. So

Decision variables (x1, x2 ... xn) - 'n' refers to associated quantifiable decisions to be made. Objective function - It is a measure of performance profit which is expressed as mathematical function of decision variables.

Constraints - any limitations on values that can be allocated to decision variables in terms of equations or inequalities. For instance, x1 +2x2 ≥ 20Parameters - the constant which are there in the constraints (right hand side values)

The alternatives available for the decision problem is in the form of unknown variables

Example - Assume a company manufacturing chairs and tables with the purpose of getting optimum profit, then the decision variables are count of chairs and tables to be manufactured (say mathematically x and y). Decision variables are utilized to make the objective function and restrictions in mathematical functions.

The product of OR model is a mathematical form associating the objective function, constraints with variables. The mathematical function is to optimize (maximize/ minimize) the magnitude of the objective function, at the same time fulfilling all the facility constraints.

The consequent solution in the form of magnitude of decision variables value of objective function is called as "optimum feasible solution".

A mathematical model of OR is arranged as

Maximize or Minimize (Objective Function) Subject to (Constraints)

Linear Programming (LP)

It is a mathematical method which optimizes the accessible resources.

Optimization

The solution of the model gives the values of the decision variables that maximize or minimize the value of the objective function and also satisfying all the constraints of that particular system. Hence optimization can be maximization or minimization.

Example: Maximize the gain of the production-oriented company.

Minimize the losses of the trading company.

The advantages of using mathematical models are -

Explain the problem in brief

Makes whole structure of problem understandable

Provide help to reveal significant cause-and-effect relationships

Mentions clearly about what additional data are relevant for analysis

Creates a bridge to use mathematical technique in computers to examine

3. **Obtaining solutions from the model**

This phase is to create a process for deriving solutions to the problem. A general theme is to strive for an optimal or best solution. The main aim of OR team is to obtain an optimal solution which minimizes the cost and time and maximizes the gains.

According to Herbert Simon "Satisficing is more widespread than optimizing in actual practice. Where satisficing equal satisfactory plus optimizing

According to Samuel Eilon "Optimizing is the science of the ultimate; Satisficing is the art of the feasible.

To find the solution, the OR team uses Heuristic procedure which is a designed procedure and does not guarantee an optimal solution is used to get a good suboptimal solution.

Metaheuristics which provides both general structure and strategy guidelines for developing a precise heuristic procedure to fit in a kind of problem.

Post-Optimality analysis is the analysis done after getting an optimal solution. It is also known as what-if analysis. It comprises of conducting sensitivity analysis to find out which parameters of the model are most significant in determining the solution.

4. **Checking the model**

After deriving the solution, it is tested and analyzed as a whole for errors if any. The process of testing and enhancing a model is to augment its validity and is generally referred as Model validation. The OR group doing this review should preferably contain at least one individual who did not contribute or participate in the formulation of model to check mistakes.

Retrospective test is a systematic approach to test the model. This test uses chronological data to reconstruct the past and then devise the model and the consequent solution. Comparing the effectiveness of this assumed performance with what actually happened signifies whether the model tends to give a noteworthy improvement over current practice.

5. **Preparing to execute the model**

After the ending of testing phase, the next step is to implement a well-documented system for practically implementing the model. This system will comprise the model, solution procedure and operating measures for implementation.

The system generally is computer-based. Management Information System and Databases can give up-to-date input for the model. An interactive computer-based system which is called as Decision Support System is installed to assist the manager to use models and data to support their decision making as per requirement. A managerial report infers output of the model and its implications for applications.

6. **Final Execution or Implementation**

The end phase of an OR study is to implement the system as agreed by the management. The completion of this phase depends on the assistance of both top management and operating management.

The implementation phase includes various steps

OR team gives a comprehensive explanation to the operating management

If the solution is satisfactory, then operating management will give the description to the personnel, the new guidelines.

The OR team supervise the functioning of the new system Feedback is taken Documentation

**Limitations of Operations Research**

**Dependence on an Electronic Computer:**

O.R. techniques try to find out an optimal solution taking into account all the factors. In the modern society, these factors are enormous and expressing them in quantity and establishing relationships among these require voluminous calculations that can only be handled by computers.

**Non-Quantifiable Factors:**

O.R. techniques provide a solution only when all the elements related to a problem can be quantified. All relevant variables do not lend themselves to quantification. Factors that cannot be quantified find no place in O.R. models.

**Distance between Manager and Operations Researcher:**

O.R. being specialist's job requires a mathematician or a statistician, who might not be aware of the business problems. Similarly, a manager fails to understand the complex working of O.R. Thus, there is a gap between the two.

**Money and Time Costs**:

When the basic data are subjected to frequent changes, incorporating them into the O.R. models is a costly affair. Moreover, a fairly good solution at present may be more desirable than a perfect O.R. solution available after some time.

**Implementation:** Implementation of decisions is a delicate task. It must consider the complexities of human relations and behavior.

1. Explain ways in which purchasing, and supply performance measurement may enhance productivity of an organization.

**Answers:**

Measuring purchasing performance is important, as the purchasing department plays an increasingly important role in the supply chain during an economic downturn.

A reduction in the cost of raw material and services can allow companies to competitively market the price of their finished goods to win business. An obvious performance measure of the success of any purchasing department is the amount of money saved by the company. However, there are several performance measurements that businesses can use when they measure purchasing performance.

Business organizations need to capitalize on Supply Chain (SC) capabilities and resources to bring products and services to the market faster, at the lowest possible cost, with the appropriate product and service features and the best overall value (Gunasekaran et al., 2001). Performance measures are important to the effectiveness of SC. Companies can no longer focus on optimizing their own operations to the exclusion of their suppliers' and customers' operations. Supply Chain Performance Measures (SCPM) serve

as an indicator of how well the SC system is functioning. Measuring SC performance can facilitate a greater understanding of the SC and improve its overall performance (Charan et al., 2008).

There is an emerging requirement to focus on the performance measurement of the SC in which company is a partner (Charan et al., 2008).

**Purchasing Efficiency**

Administrative costs are the basis for measuring purchasing efficiency. This performance measurement does not relate to the number of purchased items that the department has procured. The measurement relates to how well the purchasing department is performing in the activities they are expected to perform against the budget that is in place for the department.

If the purchasing costs are within the budget, then the efficiency of the purchasing department will exceed expectations. If the department is using funds over and above the budget, then the purchasing function is not efficient.

**Purchasing Effectiveness**

The price that the purchasing department paid for an item is not necessarily a good measurement of purchasing performance.

The price of an item may fluctuate due to market conditions, its availability, and other demand pressures. Therefore, the purchasing department may not be able to control the price. A popular method of assessing purchasing effectiveness is to review the inventory turnover ratios. The ratio measures the number of times, on average that the inventory is used, or turned, during the period.

The ratio used to measure the liquidity of the inventory. However, this is not always a great measure of purchasing effectiveness as seasonal requirements for having items in stock can make this measurement inaccurate.

**Purchasing Functionality**

Purchasing performance can be measured against the functional requirements of the purchasing function.

The primary function of the department is to provide the correct item at the required time at the lowest possible cost. The performance measurement can take into account these elements, but it does not take into account factors that may relate to supplier stability, material quality issues, and supplier discounts.

**Performance Measurements**

The performance of the purchasing function can be measured using a variety of measurements. A company can decide which of these measurements of effectiveness are relevant to the performance of their purchasing department. The measurements can include:

**Cost Saving**

If the purchasing department procures an item at a lower price than they did previously, then it is a cost-saving. This can occur when a new supplier is found, a less costly substitute item is used, a new contract has been signed with the vendor, a cheaper transportation method has been found, or the purchasing department has negotiated a lower price with the existing supplier.

**Increased Quality**

When an item has improved quality either by using a different supplier or by negotiating with the existing supplier, the improvement will be reflected in a reduction of waste or production resources.

**Purchasing Improvements**

Efficiencies in the methods used in the purchasing department will increase effectiveness. These can include the introduction of EDI, e-procurement systems, vendor-managed inventory and pay on receipt processes.

**Transportation Improvements**

When a purchasing department negotiates with a carrier or number of carriers to reduce the cost of transporting items from the vendor to the production facilities, the unit cost of the item will be reduced. This cost-saving can be used as a measurement of effectiveness.

**Purchasing Performance**

Several studies have been carried out on purchasing performance and the results have noted that there is no one method that will cover every purchasing department. However, there are several key measures that are found to be common in evaluating performance. Namely, cost-saving, vendor quality, delivery metrics, price effectiveness, and inventory flow. Although these key measures are common, the weight placed on these measures is by no means uniform and will vary between industries and businesses. In addition, the importance of these measures to the overall effectiveness of a purchasing department will change over time and, therefore, need to be assessed and modified on a periodic basis.

1. Purchasing and supply management differ from each other in their focus and scope. Explain pointing out the difference between the two.

**Answers:**

Many people use the terms purchasing and procurement interchangeably, but despite their similarities, they do have different meanings. Let’s clarify any confusion on the difference between procurement and purchasing.

Procurement involves the process of selecting vendors, establishing payment terms, strategic vetting, selection, the negotiation of contracts and actual purchasing of goods. Procurement is concerned with acquiring (procuring) all the goods, services, and work

that is vital to an organization. Procurement is, essentially, the overarching or umbrella term within which purchasing can be found.

**The Importance of Strategy**

Because procurement is an umbrella term that includes several core business functions it should be considered a core part of any organization’s corporate strategy.

Entrepreneurial-insights.com have published a great explanation of 4 aspects of corporate strategy. Those aspects are: Company Identity, Market Placement, Company Capabilities, and Management Issues.

**Company Identity:**

What does our company do and stand for?

What beliefs inform our business model?

**Market Placement:**

Who are our customers?

What do they want?

What do they believe in?

**Company Capabilities:**

What are our strengths and weaknesses?

Do our strengths support our long-term goals?

How do we want to grow?

**Management Issues:**

Do we need to hire/develop talent to lead us to our goals?

Does the company have the resources needed to achieve our goals?

We like this breakdown because procurement touches each of these components.

For instance, procurement and company identity can be intertwined. If your business is building or has built its identity around an environmentally conscious ethic, then your procurement strategy should reflect that decision. Policies should be in place to ensure you are sourcing from companies with similar ethics, or that you are sourcing materials that are not environmentally hazardous.

Your market placement should reflect your branding. Customers are without a doubt, attracted to the philosophies and practices a business uses, and often seek companies whose values reflect their own.

Your company’s capabilities and management issues should also reflect that branding. You must have the right people in place to put into action the beliefs/philosophies you want your business to be governed by.

**Steps in the Procurement Process**

Aligning your procurement function with your corporate strategy is only one part of the goal of procurement. Goods and services also need to be purchased.

The process of purchasing these good and services is known as the Procure-To-Pay Cycle. The entire Procure-To-Pay Cycle can be an involved process with numerous steps:

* Identification of Requirements
* Authorization of Purchase Request
* Approval of Purchase Request
* Procurement Identification of Suppliers Inquiries
* Receipt of the Quotation Negotiation
* Selection of the Vendor
* Purchase Order Acknowledgement
* Advance Shipment Notice
* Goods Receipt
* Invoice Recording
* 3 Way Match
* Payment to Supplier

Although this list is extensive, the nature of your specific business will determine the extent of the Procure-To-Pay cycle you use. For example, if your work in a large, multinational corporation, you may have to undergo a more involved “Identification of Requirement” phase. On the other hand, if you work in a small firm, that stage may be quick and simple. Understand the scope of your business and tailor as needed.

Using purchase orders (especially those generated by an e-procurement solution such as Procurify) is critical, regardless of the size of your organization. Don’t simply use your credits card(s) and save the receipts. Don’t rely on emails which are hard to track.

**The Purchasing Process**

Purchasing is a subset of procurement. Purchasing generally refers simply to buying goods or services. Purchasing often includes receiving and payment as well.

Within the overarching Procure-To-Pay Cycle, the steps specifically related to purchasing are:

* Purchase Order Acknowledgement
* Advance Shipment Notice
* Goods Receipt
* Invoice Recording
* 3 Way Match
* Payment to Supplier

Unlike the entire Procure-To-Pay Cycle, the steps explicitly related to purchasing should not be tailored to suit the size and scope of each individual business. These are fundamental steps of good purchasing and should be employed routinely as a best practice in all businesses.

Because purchasing is a process within the overarching procurement process, both procurement and purchasing are often used interchangeably. In the business world, the practice of using similar terminology in either conversation or printed materials is routine, although it is often confusing and should be avoided.

Procurement deals with the sourcing activities, negotiation and strategic selection of goods and services that are usually of importance to an organization. Purchasing is the process of how goods and services are ordered. Purchasing can usually be described as the transactional function of procurement for goods or services.

1. Discuss the four principles that might guide a supply chain manager.

**Answers:**

To balance customers' demands with the need for profitable growth, many companies have moved aggressively to improve supply chain management. Their efforts reflect several principles of supply chain management that, working together, can enhance revenue, cost control, and asset utilization as well as customer satisfaction. Implemented successfully, these principles prove convincingly that you can please customers and enjoy profitable growth from doing so.

Managers increasingly find themselves assigned the role of the rope in a very real tug of war—pulled one way by customers' mounting demands and the opposite way by the company's need for growth and profitability DAVID L. ANDERSON, FRANK F. BRITT, and DONAVON J. FAVRE 4/1/1997. Many have discovered that they can keep the rope from snapping and, in fact, achieve profitable growth by treating supply chain management as a strategic variable. These savvy managers recognize two important things. First, they think about the supply chain all the links involved in managing the flow of products, services, and information from their suppliers' suppliers to their customers' customers that is, channel customers, such as distributors and retailers. Second, they pursue tangible outcomes focused on revenue growth, asset utilization, and cost reduction. Rejecting the traditional view of a company and its component parts as distinct functional entities, these managers realize that the real measure of success is how well activities coordinate across the supply chain to create value for customers, while increasing the profitability of every link in the chain. In the process, some even redefine the competitive game; consider the success of Procter & Gamble

**1.Adapt Supply Chain to Customer’s Needs**

Both business people and supply chain professionals are trained to focus on customer’s needs. To understand customer better, we divide customers into different groups and we call it “segmentation”. The most primitive way to segment customer is ABC analysis that groups customer based on sales volume or profitability. Segmentation can also be done by product, industry and trade channel.

**2. Customize Logistics Network**

When you segment customer based on service needs, you may have to tailor different logistics networks to serve different segment. However, this principle doesn’t hold true for all situations.

For example, if you were contract manufacturer in China, you might already have different logistics networks for different customers. Each customer in US or EU might already control source of raw materials, ask you to provide dedicated production lines, nominate 3pl companies and air/sea carriers. So, logistics network design is kind of initiative driven mainly by customer.

**3. Align Demand Planning Across Supply Chain**

Supply chain practitioners are taught to share demand data with trading partners, so nobody must keep unnecessary stock. In general, this principle holds true. But, only Walmart is actively sharing demand data to trading partners.

There is a very interesting paper by Williams and Waller 2011, the result of research found that; If you make demand forecast based on SKU/Customer level, using your own historical order data is more accurate than using POS data you get from retailers

If you make demand forecast based on SKU/Store level, using POS data you get from retailers is more accurate than using your own historical order data

The implication is that the absence of demand sharing is not necessarily bad. But when you got demand data from trading partners, you MUST use it the right way.

**4.Differentiate Products Close to Customer**

The is something that Dell is very famous for, keeping components and assemble them only after customer places the order in order to increase product variety. This principle is still true, but, there is another principle that you should consider.

“Standardization” is in the opposite polarity of “Differentiation.

1. Explain the circumstances under which the supplier bargaining power may be higher than the buyers.

**Answers:**

In Porter’s five forces, supplier power refers to the pressure suppliers can exert on businesses by raising prices, lowering quality, or reducing availability of their products. When analyzing supplier power, you conduct the industry analysis from the perspective of the industry firms, in this case referred to as the buyers. According to Porter’s 5 forces industry analysis framework, supplier power, or the bargaining power of suppliers, is one of the forces that shape the competitive structure of an industry.

The idea is that the bargaining power of the supplier in an industry affects the competitive environment for the buyer and influences the buyer’s ability to achieve profitability. Strong suppliers can pressure buyers by raising prices, lowering product quality, and reducing product availability. All these things represent costs to the buyer. Furthermore, a strong supplier can make an industry more competitive and decrease profit potential for the buyer. On the other hand, a weak supplier, one who is at the mercy of the buyer in terms of quality and price, makes an industry less competitive and increases profit potential for the buyer.

**Types of Suppliers**

Depending on the industry, there are various types of suppliers. A list of suppliers includes:

* **Manufacturers and Vendors:** Sells products to distributors, wholesalers, and retailers.
* **Distributors and Wholesalers:** Purchases goods in medium/high quantity for sale to retailers or local distributors.
* **Independent Suppliers / Independent Craftspeople:** Sells unique products directly to retailers or agents.
* **Importers and Exporters:** Purchase products from manufacturers in one country and export to a distributor in a different country.
* **Drop shippers:** Suppliers of products for different kinds of companies.

**Supplier Power – Determining Factors**

The supplier power Porter has studied includes several determining factors. If suppliers are concentrated compared to buyers there are few suppliers and many buyer’s supplier bargaining power is high. Conversely, if buyer switching costs the cost of switching from one supplier’s product to another supplier’s product are high, the bargaining power of suppliers is high. If suppliers can easily forward integrate or begin to produce the buyer’s product themselves, then supplier power is high. Supplier power is high if the buyer is not price sensitive and uneducated regarding the product. If the supplier’s product is highly differentiated, then supplier bargaining power is high. The bargaining power of suppliers is high if the buyer does not represent a large portion of the supplier’s sales. If substitute products are unavailable in the marketplace, then supplier power is high.

**Bargain power of suppliers is high/strong if any of the following applies:**

* Concentrated suppliers
* Buyer switching costs are high
* Buyer is not price sensitive
* Threat of forward integration is high
* Buyer purchases product in low volume
* Product is highly differentiated
* Buyer purchases comprise small portion of supplier sales
* Substitutes are unavailable
* Buyer is uneducated about the product
* Supplier Bargain Power is Low/Weak
* Supplier bargain power is low/weak if any of the following applies:

**Supplier bargain power is low/weak if any of the following applies:**

* Concentrated buyers
* Buyer switching costs are low
* Buyer is price sensitive
* Threat of forward integration is low
* Buyer purchases product in high volume
* Product is undifferentiated
* Buyer purchases comprise large portion of supplier sales
* Substitutes are available
* Buyer is well-educated regarding the product

Purpose of Bargaining Power of Suppliers Analysis

When doing an analysis of supplier power in an industry, low supplier power creates a more attractive industry and increases profit potential as buyers are not constrained by suppliers. High supplier power creates a less attractive industry and decreases profit potential as buyers rely more heavily on suppliers.

1. Highlight five strategic issues in purchasing and supply that may be put in place to ensure value of money without sacrificing the environment.

**Answers:**

Value for money is derived from the optimal balance of benefits and costs based on

total cost of ownership. As such, value for money does not necessarily mean that a tender

must be awarded to the lowest tenderer (Civil Service College, 2010). Value for money is a term generally used to describe an explicit commitment to ensuring the best results possible are obtained from the money spent. In the UK Government, use of this term reflects a concern for more transparency and accountability in spending public funds, and for obtaining the maximum benefit from the resources available (Barnett et al 2010). Value for money in public procurement is achieved through pursuing the lowest whole of life cost, clearly defining relevant benefits and delivering on time. Preventing waste and fostering competition, transparency and accountability during the tendering process are key conditions to achieving value for money. Value for Money refers to a judicious, economic and efficient use of state resources at a reasonable cost. Value for money is not about achieving the lowest initial price: it is defined as the optimum combination of whole life costs and quality. Some purchasing strategies may include such choices as making procurement savings by using centralized purchasing which is concentrating the entire procurement activities within one principal location & source of authority. Companies implement purchasing strategies to make cost effective purchasing decisions from a group of efficient vendors who will deliver quality goods on time and at mutually agreeable terms.

For example, some companies may decide to undertake a single sourcing procurement strategy that involves obtaining excellent dedicated service from a single vendor. These strategies are predominant when sourcing for IT or indirect purchasing such as office supplies and cleaning.

Other companies may use a procurement strategy of using a core purchasing cycle. This is where they order from a group of regular vendors and use outsourcing procurement for their larger and ad hoc purchases.

Still others, particularly when they are seeking labor for short-term projects will use procurement auctions to obtain the best pricing levels.

Regardless of the size of the company, there is a core group of 6 purchasing strategies that most of them implement.

**1. Supplier Optimization**

The company chooses an optimum mix of vendors who can provide the best prices and terms. This process usually means that the less able suppliers who cannot provide a quality service at the terms and prices required are discarded. This is by far the most common of the various purchasing strategies.

**2.** **Total Qualify Methods (TQM**)

Total Quality Methods require the vendors to provide an ever-increasing quality service with zero errors. The supplier ensures purchasing best practices using several tools such as six sigma’s.

**3. Risk Management**

As more companies obtain their supplies from countries such as China and India, they are more concerned with the risk management of this supply chain. Whilst these countries can supply products at very advantageous prices, these advantages can be soon negated by a natural or human disaster.

Japan's Fukushima Nuclear Disaster in 2011 shook up the supply chain as in the race to provide better quality at lower prices, manufacturers picked very narrow, optimized supply chain. They put all their eggs with one supplier that had the best product at the lowest price. This resulted in production delays, product shortages and higher prices, since manufacturers had not factored risks from a natural disaster of such a great scale.

4**. Global Sourcing**

Large multinational companies see the world as one large market and source from many vendors, regardless of their country of origin.

Implementing a global strategic sourcing strategy means efficiently sourcing goods and services from any country that can manufacture the goods or provide the service more economically.

While Global Sourcing is here to stay, organizations need to tread carefully and have plans in place to manage risks.

**5.** **Vendor Development**

Depending on the scale and depth of services or goods a vendor provides, it might be necessary to work closely with such vendors. Helping in developing processes that assist these vendors to come with better or cheaper products, helps companies to reduce costs.

Or in cases where a company is dependent upon just one supplier for their products & the supplier is unable to perform to the required standards, the purchaser may assist the vendor in improving their service or implement processes to improve their procurement cycle. This ultimately would help the purchaser/buyer have a reliable supplier and product deliveries.

1. What is the difference between a purchase order and purchase requisition. Prepare a standard purchase requisition form with all the entries filled.

**Answer:**

Purchase requisitions and purchase orders – more commonly referred to as POs – are both key documents in an efficient procurement process for any business. They enable teams to plan purchases adequately, plan budgets, and provide proof of spending in case of financial audits.

Yet many business owners are unfamiliar with each document and their specific roles within the purchasing process. As a result, people either misuse these documents or don’t use them at all!

Let’s break down the basics of the procurement process by exploring the difference between purchase requisitions and purchase orders.

**What is a purchase requisition?**

A purchase requisition is a document that an employee within your organization creates to request a purchase of goods or services.

When you fill out a purchase requisition, you are not yet purchasing anything. You are merely beginning the process of a purchase by asking for internal permission.

This document is used when an employee in your organization makes an order request if a need arises for certain goods or services.

The employee’s manager or anyone in charge of purchases at your company is notified that the employee has made an order request once they receive the requisition.

A typical purchase requisition form used to secure internal approval for a purchase request.

Purchase requisitions outline the details required before completing a purchase, should it be approved, such as:

* Product description and quantity
* Name of vendor
* Price
* Name and department of purchaser

Purchase requisitions rarely leave your organization. Employees use these internal documents to obtain permission. As such, they are not a legally binding document.

Not all companies use purchase requisitions in their procurement process. In other cases, some companies require a purchase requisition for purchases going over a set dollar amount.

Additionally, the accounting department uses this document to plan for future spending. It’s much easier to avoid costly mistakes if you check the budget prior to approving a purchase.

**Why do you need purchase requisitions?**

Purchase requisitions detail out all the details of an order that your organization needs to make. So why not just skip the purchase requisition and go straight to the purchase order?

1. **They help establish a clear procurement process –** By rerouting permission to purchase to a common manager using purchasing requisition form, you can streamline your organization’s pipeline. The process is much easier to manage and formalize when there are clear rules for who can purchase what, and when.
2. **They help detect and prevent fraud in your organization** – The more steps involved in the procurement process, the more likely someone will sniff out a fraudulent purchase if it does happen.
3. **They give Finance more direct control over purchasing –** If someone from outside of the department needs to purchase something, they can fill out a purchase requisition and submit it to the head of purchases. This way, the same department oversees every purchase your organization makes.

**How does a purchase requisition work?**

Purchase requisitions are first filled out by an employee who sees the need for a product or a service. The employee fills in all the details, including the price, suggested vendor, and the specifics of the goods or services. The document is then sent to the purchasing department for approval.

Let’s say you are running a manufacturing company. You have a team of mechanics who do routine inspects and fixes on your drills, saws, and other machinery. If one of your mechanics finds out about a new type of equipment that would make their lives easier for routine checkups – equipment that your company has never purchased before – they could fill out a purchase requisition without needing to ask for permission first.

The mechanic files the completed form to the purchasing department. They take care of approving or denying the request for new equipment. Because the equipment is high-end, the head of purchases would check in with the finance department first to make sure this is a feasible demand.

**What is a purchase order?**

Also known as a PO, the purchase order is a document outlining the details of an actual purchase.

The purchasing department creates the purchase order once a purchase requisition has been approved. If an organization does not use purchase requisitions, other employees may fill in purchase orders for approval as well.

Unlike a purchase requisition, the purchase order is an external document. Purchasing sends it to the vendor as a set of instructions for how to fulfill your order and process your payment.

POs are not the same as invoices-they are not a prompt for payment.

And once a purchase order form has been finalized and approved by the buyer and vendor, it becomes a legal binding document

A sample purchase order sent to the vendor corresponding to the above purchase requisition.

POs include everything the vendor needs to know to fulfill the order and everything your company needs to document the purchase:

* Name of your company
* Name of the employee making the order
* Date of PO creation
* Quantity and price of goods
* Payment terms
* Signature of all involved parties

**How do purchase orders work?**

Your organization creates purchase orders only when it wants to go ahead and officially purchase goods or services. When it has an approved purchase requisition, the purchasing department can create a PO from the information in the requisition. If the PO exceeds a set dollar amount, most companies demand approval of the VP before finalizing the document to send over to the vendor.

Let’s go back to our manufacturing company. Management decides to approve the mechanic’s purchase requisition for new high-end equipment.

From there, an employee from the purchasing department would fill in a PO. However, because the equipment will cost over $10,000, a VP must approve the PO before the purchase can be made.

The VP looks at the PO, approves it, and sends it back to the purchasing department, who takes care of sending the PO to the vendor and to their own accounting department.

Once the vendor receives and signs the document, the PO becomes legally binding. Now everyone – the mechanic, the purchasing department, the VP, the accounting department, the vendor – is in the loop and has read the same terms and conditions for a purchase.

So once the company receives their new equipment on a specific date, they’ll be expecting it.

**What is the difference between a purchase requisition and purchase order?**

Let’s quickly go over how each document differs:

|  |  |  |
| --- | --- | --- |
| **Feature** | **Purchase Requisition** | **Purchase Order** |
| What is it? | Request for a purchase | Confirmation of an order |
| Who creates it? | Any employee | Purchasing department or head of a department |
| When is it sent? | When an employee sees a demand for goods or services | When an order needs to be placed for goods and/or services |
| Who receives it? | Head of department and/or purchasing department | Vendor |
| What info does it contain? | – Date requisition is created – Requisition number – Name of employee making requisition – Description of items needed – Number of items and price– Suggested vendor information | – Date PO is created – PO number – Name of buyer – Description of items or service being purchased – Number of items and price – Payment terms – Billing and shipping addresses – Delivery date |

1. Identify and briefly explain some important documents that Purchasing departments should have a record of.

**Answers:**

Procurement is the process of obtaining good or service in anyway, including borrowing, leasing and even force or pillage (Lysons et al, 2006).

According to John, Chandra, Tim (2008) defined that, procurement includes sourcing and purchasing and coves all the activities involved in the product/ service sourcing, purchasing and delivery from supplier to the customer. It is a very important activity in manufacturing supply chain as purchased parts and materials account for over 60% of the cost of finished goods (John, Chandra, Tim 2008). For retail companies within the supply chain this percentage can be as high as 90% (John, Chandra, Tim 2008).

**procurement cycle**

**Information Gathering** - A potential customer first researches suppliers, who satisfy requirements for the product needed.

**Supplier Contact** - When a prospective supplier has been identified, the customer requests for quotations, proposals, information and tender. This may be done through advertisements or through direct contact with the supplier.

**Background Review** - The customer now examines references for the goods/services concerned and may also consider samples of the goods/services or undertake trials.

**Negotiation** - Next the negotiations regarding price, availability and customization options are undertaken. The contract regarding the purchase of the goods or services is completed.

**Fulfilment** - Based on the contract signed, the purchased goods or services are shipped and delivered. Payment is also completed at this stage. Additional training or installation of the product may also be provided.

**Renewa**l - Once the goods or services are consumed or disposed of and the contract has expired, the product or service needs to be re-ordered. The customer now decides whether to continue with the same supplier or look for a new one.

Documents involved in the procurement cycle are called procurement documents. Procurement documents are an integral part of the early stages of project initiation.

The purpose of procurement documents serves an important aspect of the organizational element in the project process. It refers to the input and output mechanisms and tools that are put in place during the process of bidding and submitting project proposals and the facets of work that make up a project.

In a nutshell, procurement documents are the contractual relationship between the customer and the supplier of goods or services.

Examples of Procurement Documents

Some examples of what constitutes procurement documents include the buyer's commencement to bid and the summons by the financially responsible party for concessions.

In addition, requests for information between two parties and requests for quotations, and proposals and seller's response are also parts of procurement documents.

Basically, procurement documents comprise of all documents that serve as invitations to tender, solicit tender offers and establish the terms and conditions of a contract.

**Types of Procurement Documents**

**A few types of procurement documents are:**

**RFP -** A request for proposal is an early stage in a procurement process issuing an invitation for suppliers, often through a bidding process, to submit a proposal on a specific commodity or service.

**RFI -** A request for information (RFI) is a proposal requested from a potential seller or a service provider to determine what products and services are potentially available in the marketplace to meet a buyer's needs and to know the capability of a seller in terms of offerings and strengths of the seller.

**RFQ -** A request for quotation (RFQ) is used when discussions with bidders are not required (mainly when the specifications of a product or service are already known) and when price is the main or only factor in selecting the successful bidder.

**Solicitations:** These are invitations of bids, requests for quotations and proposals. These may serve as a binding contract.

**Offers -** This type of procurement documents are bids, proposals and quotes made by potential suppliers to prospective clients.

**Contracts -** Contracts refer to the final signed agreements between clients and suppliers.

**Amendments/Modifications -** This refers to any changes in solicitations, offers and contracts. Amendments/Modifications must be in the form of a written document.

**Structure of a Procurement Document**

Most procurement documents adopt a set structure. This is because it simplifies the documentation process and allows it to be computerized.

Computerization allows for efficiency and effectiveness in the procurement process.

In general, procurement documents have the following attributes:

* Requires potential bidders to submit all for the employer to evaluate the bidder.
* All submissions to be set out in a clear and honest manner to ensure that the short-list criterion is unambiguous.
* Clear definition of the responsibilities, rights and commitments of both parties in the contract.
* Clear definition of the nature and quality of the goods or services to be provided.
* Provisions without any prejudice to the interests of either party.
* Clear and easy to understand language.

**Commonly Encountered Procurement Documents**

* **Engineering and Construction Work**
* Minor/Low Risk Contracts**:** In this type of contract, services are required by an organization for a short period and the work is usually repetitive. Hence, this type of contract does not require high-end management techniques.
* Major/High Risk Contracts**:** Here, the type of work required is of a more difficult nature and here the implication of sophisticated management techniques is required.
* **Services**
* **Professional -** This requires more knowledge-based expertise, and this requires managers, who are willing to put more time and effort into seeking research to satisfy the customer's criteria.
* **Facilities -** Often, in this type of service the work outsourced is the maintenance or operation of an existing structure or system.
* **Supplies**
* **Local/Simple Purchases -** Goods are more readily available and hence does not require management of the buying and delivery process.
* **International/Complex Purchases:** In this case, goods need to be bought from other countries. A manager's task is more cumbersome, and a management process is required to purchase and delivery. In addition, the manager needs to investigate cross-border formalities.

In most organizations, the procurement department is one of the busiest. Managers need to purchase goods or services required for the smooth running of their organization.

For example, in a hospital, a procurement manager needs to purchase medicines and surgical instruments among others. These goods and services need to be purchased at the lowest possible cost without any deficit in quality.

The documentation that passes between the procurement manager of an organization and a supplier are the procurement documents.

1. Identify and explain some of the attributes to look for when choosing a supplier.

**Answers:**

when it comes to looking for suppliers to manufacture your product, you have more options available. And, of course, you don’t have to date them. But choosing the right supplier is almost as important as choosing a lifelong partner.

Finding and selecting the best supplier is an essential first step to managing product quality and limiting product defects in your orders Choose the wrong supplier and you could face shipping delays, poor quality and product returns. But choose the right supplier and you’ll be on your way to quality products and satisfied customers.

1. **Accountability for quality issues**

Admitting to a mistake can be difficult. But when your goods are on the line, working with a quality supplier that takes responsibility for their half of a deal can make a world of difference. That’s why accountability for quality issues tops the list of characteristics of a good supplier.

A supplier with accountability will take responsibility for the quality problem and work forward to address it quickly. They might offer to remove the untrimmed threads and implement stricter quality controls or revise work instructions to prevent the same defect from appearing in future production runs.

But a supplier without accountability is more likely to deflect responsibility. They might tell you the quality of the fabric was poor and difficult to work with. Or, if you used a third-party inspector to check the goods, the supplier might accuse the inspector of incompetence or unprofessionalism.

A supplier that won’t own up to their mistakes can hinder your ability to meet deadlines and product requirements. Look for signs of accountability as a key characteristic of a good supplier.

1. **Production capabilities**

Most importers understand the importance of looking for suppliers who can manufacture the product they want. In fact, many importers focus so much on production capabilities of a prospective supplier that they overlook other vital considerations.

But verifying a supplier’s production capabilities is harder than simply talking to supplier representative you found off Alibaba. A quality supplier should be able to consistently manufacture a product that meets your requirements. looking for suppliers

How do you know if a supplier can meet your standards?

Visiting and auditing the supplier’s quality system

The only reliable way to verify a supplier’s production capabilities is to visit the supplier, either personally or through a third-party agent.

You may not be sure what to look for during a visit or may prefer to avoid the cost of traveling abroad to the factory. If so, you can rely on a third party to audit the factory’s quality management system based on ISO 9001 or a similar standard.

In either case, you can learn a lot about a supplier by verifying areas such as:

Raw materials and finished product inventory

Incoming quality control, in-process quality control and pre-shipment quality control procedures

R&D capabilities (important if you plan to develop new products)

Machine and equipment maintenance and calibration

Certifications or licensing (e.g. business license, export license)

Many suppliers will tell you they can supply the products you need. But the best suppliers will allow you to verify claims by visiting or auditing their factory.

Obtaining and approving a product sample

This second method of verifying production capabilities is less thorough than an audit but generally easier to conduct. You should ideally audit your suppliers and review product samples before mass production.

Ask your supplier to send you a product sample for your approval before moving ahead with mass production. This helps you confirm whether the factory’s production output matches your product requirements. You can also send the sample to a lab for testing for further confirmation.

1. **Expertise in your product type and target market**

A supplier is more likely to be familiar with common quality issues related to your product if they have experience manufacturing a similar product. They’re more likely to be able to identify and fix problems proactively before those problems affect a large portion of the order.

If the factory is experienced in exporting to your target market, they’ll also be relatively familiar with your quality and legal requirements. You might be able to verify where some suppliers export by checking their profile.

Most factories only specialize in manufacturing a single product type or category. A supplier that claims to manufacture a wide variety of different products is mostly likely a trading company or vendor, not a factory.

Asking the following questions can help you vet prospective suppliers’ experience with your product and market:

Where does the supplier export most of their products to?

Is the supplier familiar with legal requirements and regulations in your target market?

Does the supplier have a reliable network of sub-suppliers for raw materials, production inputs and components for your product type?

Does the supplier hold industry-specific certifications for your product type?

Buyer references can help you verify a supplier’s previous experience. But you might find prospective suppliers unwilling to provide preferences.

This is not uncommon in China due to buyer confidentiality clauses. But it can be helpful if a prospective supplier can provide reliable references with customers’ contact information.

1. **Culture fit: the best suppliers are willing to work with you**

The “ideal” supplier is rarely the same for every importer. A manufacturing giant like Apple will have different standards for their suppliers than a first-time buyer that sells on Amazon.

Some suppliers might be more inclined toward developing new products. Others might prioritize reducing their environmental footprint. The key is to find a supplier whose goals align with yours.

You can evaluate culture fit with potential suppliers by asking:

What kind of companies do they typically work with?

What is their minimum order quantity (MOQ)?

What do they know about your business?

How detailed is their quote? Have they taken time to tailor their quote to your specific requirements?

looking for suppliers Culture fit is particularly important for smaller buyers or those with custom requirements. Some large suppliers will simply be unavailable to smaller importers, due to minimum order quantity requirements.

And even if larger suppliers accept your business, they might prioritize other orders ahead of yours, likely leading to frequent production delays.

Suppliers with a customer profile like your business will be better equipped to meet your requirements. A willing to work with you and prioritize your requirements is a vital characteristic of a good supplier.

**5. Ease of communication**

Language and cultural barriers can present real challenges for importers looking for suppliers overseas. You’ll benefit greatly from working with a supplier that’s easy to communicate with. Effective communication can prevent a variety of problems ranging from production delays to product nonconformities.

What defines “effective communication?

English-speaking staff

This first mark of effective communication is obvious. You’ll probably want your supplier’s main point of contact to speak English if you don’t speak their local language.

It’s often necessary to call your supplier contact to discuss product specifications and other aspects of an order to ensure understanding. If you send your supplier a long, complicated email without following up, you may find they don’t entirely understand it or don’t bother to read it in full.

It’s quite common for factories to hire sales staff with at least a basic understanding of English. While it’s rare to find a supplier with contacts that speak perfect English, there should be someone capable enough to handle customer requests in English.

A supplier without English-speaking staff probably doesn’t work with many international customers or export to foreign markets.

Open and direct communication

What makes a supplier easy to communicate with isn’t just their ability to speak English. Communication problems often arise from the way a supplier communicates, rather than language difficulties.

**6. Cooperation with third-party QC**

Third-party inspection has become a standard requirement for most importers manufacturing in Asia. A quality supplier will comply with an importer’s request to have an outside inspector verify the goods before shipment.

A supplier’s resistance to third-party quality control is usually cause for concern. Some suppliers will try to ship the goods quickly before you have a chance to raise concerns. Such a supplier may be trying to hide an issue from the you.

Outside oversight can help the factory Pointing out defects the factory’s own QC staff might have missed

Improving their customer relationships by ensuring product quality before shipment

Clarifying product requirements and inspection expectations, preventing customer returns and chargebacks

The best suppliers typically book inspections on time and assist inspectors on site. If problems are found during inspection, they provide objective feedback and advise how to resolve issues.

The same suppliers are also open with their internal documentation and processes during audits (related: 4 Keys to Smoothly Introduce Third-Party Inspection to Your Factory).

**7. Ethical compliance**

Ethical sourcing has made its way into the spotlight. As larger brands have made headlines in recent years for social compliance violations in their supply chain, countries have taken steps to outlaw goods made with forced labor.

Many importers don’t want to work with a factory that treats their workers unfairly or maintains unsafe working conditions.

By choosing to work only with the best suppliers that meet popular social compliance standards, you can verify that:

Your products are not made with slave or child labor

Your products are made in safe working conditions

Your production timelines won’t be delayed by labor unrest, disasters and factory shutdowns

Your retailers won’t refuse to distribute your products

Your brand’s reputation is protected from negative press surrounding unethical sourcing

Ethics may not be the first thing that comes to mind when you’re looking for suppliers. But it’s not difficult to audit a supplier or prospective factory for social compliance. And disregarding ethics entirely could lead to problems down the road for your business.

**8. Regulatory compliance**

Aside from ethical compliance, importers need to ensure their supplier complies with laws in both their manufacturing country and their target market. Failing to ensure regulatory compliance can otherwise lead to legal consequences for you and your business.

looking for suppliers A factory audit and credit check can help you verify a factory’s legitimacy when looking for suppliers. Checking whether the supplier has a valid business license and export license can help you avoid working with a factory that’s operating illegally.

But you may be subject to other laws if you import certain products. Clear evidence of regulatory compliance through accreditations can be one of the most important characteristics of a good supplier.

Some common market- or product-specific regulations and certifications to verify include:

FCC Declaration of Conformity, Restriction of Hazardous Substances (RoHS)

Good Manufacturing Practice (GMP) for food, medical devices, pharmaceuticals and cosmetics

General Certificate of Conformity (GCC) for any non-children’s product

Children’s Product Certificate for all children’s products subject to children's product safety rules

Model Toxics in Packaging Legislation for packaging materials and components

It’s a great idea to ask potential suppliers for previous test reports and certificates as evidence of their compliance. You might also consider arranging independent product testing for a supplier’s samples to further verify compliance where applicable.

**9. Clear and comprehensive recordkeeping**

Do you think your quality standards and requirements will remain static throughout your entire relationship with a supplier? Probably not. Importers often adjust AQLs and quality requirements based on known quality issues, customer requirements and history with the supplier.

The best suppliers proactively update their records and information to seamlessly implement changes. Important information for your supplier to keep organized and continually updated includes:

Quality standards, including known quality issues, defect classifications and performance standards

Product specifications and requirements, including dimensions, colors and materials

Packaging requirements, including labels, shipping markings and retail printing files

Regulatory requirements, including any changes in legislation and standards

Maintaining clear and updated quality records is one of the key tenets of ISO 9001 certification. If an audit verifies the supplier has clear documentation policies, this is a strong indicator you’re working with a quality supplier.

Keeping information updated isn’t only your supplier’s responsibility. It’s also your responsibility to clearly outline new requirements to your supplier. But the best suppliers are well organized and proactively update and document new requirements internally.

**10. A proactive attitude towards continuous improvement**

This last quality is probably the hardest to find among overseas suppliers. But it’s also one of the most valuable if you’re serious about maintaining a long-term, high-volume relationship with a supplier.

At the very least, a quality-conscious supplier should have an established quality management system (QMS) that complies with ISO 9001. You can verify this through a factory audit when verifying production capabilities.

But suppliers oriented towards continuous improvement will go above and beyond ISO 9001 certification to reduce waste and improve efficiency in their operations. They implement several lean manufacturing, mistake proofing and process control techniques.

Most manufacturers for low-cost consumer products won’t adopt lean manufacturing techniques on their own. But conducting a process audit can help you identify root causes for product quality issues and then work with your supplier to fix them.

Finding a supplier can be one of the toughest, most stressful parts of sourcing a product. It’s important to find a supplier that is easy to work with and will give you the best possible product. But what are the best qualities to look for?

Communication, willingness to work with you, profile statistics, price and quality of the supplier are all important boxes that need to be checked before you pick a supplier.

Just because a supplier shows you a few amazing product samples doesn’t mean they can live up to those promises for mass production. Considering these ten characteristics of a good supplier will help you determine whether a supplier is best for your supply chain, your customers and your business.

1. What is inventory management. What is the importance of keeping an inventory in an organization. Identify the different types of inventory.

**Answers:**

Inventory management is a systematic approach to sourcing, storing, and selling inventory both raw materials components and finished goods products.

In business terms, inventory management means the right stock, at the right levels, in the right place, at the right time, and at the right cost as well as price.

As a part of your supply chain, inventory management includes aspects such as controlling and overseeing purchases from suppliers as well as customers maintaining the storage of stock, controlling the amount of product for sale, and order fulfillment.

Naturally, your company’s precise inventory management meaning will vary based on the types of products you sell and the channels you sell them through. But if those basic ingredients are present, you’ll have a solid foundation to build upon.

The goal of inventory management systems is to know where your inventory is at any given time and how much of it you must manage inventory levels correctly.

Some companies may opt to scan in inventory via a barcode scanner to increase efficiency.

Important of keeping an inventory in an organization:

Inventories are essential for keeping the production wheels moving, keep the market going and the distribution system intact. They serve as lubrication and spring for the production and distribution systems of organizations. Inventories make possible the smooth and efficient operation of manufacturing organizations by decoupling individual segments of the total operation. Purchased parts inventory permits activities of the purchasing and supply department personnel to be planned, controlled and concluded somewhat independently of shop-product operations. These inventories allow additional flexibility for suppliers in planning, producing and delivering an order for a given product’s part, loner gan (2003) Inventory is essential to organization for production activities, maintenance of plant and machinery as well as other operational requirements. This results in tying up of money or capital which could have been used more productively. The management of an organization becomes very concerned in inventory stocks are high. Inventory is part of the company assets and is always reflected in the company’s balance sheet. This therefore calls for its scrutiny by management, Sallemi (1997) Management is very critical about any shortage of inventory items required for production. Any increase in the redundancy of machinery or operations due to shortages of inventory may lead to production loss and its associated costs. These two aspects call for continuous inventory control. Inventory control and management not only looks at the physical balance of materials but also at aspects of minimizing the inventory cost along pick routes and accuracy

**Type of Inventory**

**RAW MATERIALS**

Raw materials are inventory items that are used in the manufacturer's conversion process to produce components, subassemblies, or finished products. These inventory items may be commodities or extracted materials that the firm or its subsidiary has produced or extracted. They also may be objects or elements that the firm has purchased from outside the organization. Even if the item is partially assembled or is considered a finished good to the supplier, the purchaser may classify it as a raw material if his or her firm had no input into its production. Typically, raw materials are commodities such as ore, grain, minerals, petroleum, chemicals, paper, wood, paint, steel, and food items. However, items such as nuts and bolts, ball bearings, key stock, casters, seats, wheels, and even engines may be regarded as raw materials if they are purchased from outside the firm.

**WORK-IN-PROCESS**

Work-in-process (WIP) is made up of all the materials, parts (components), assemblies, and subassemblies that are being processed or are waiting to be processed within the system. This generally includes all material from raw material that has been released for initial processing up to material that has been completely processed and is awaiting final inspection and acceptance before inclusion in finished goods.

**FINISHED GOODS**

A finished good is a completed part that is ready for a customer order. Therefore, finished goods inventory is the stock of completed products. These goods have been inspected and have passed final inspection requirements so that they can be transferred out of work-in-process and into finished goods inventory. From this point, finished goods can be sold directly to their final user, sold to retailers, sold to wholesalers, sent to distribution centers, or held in anticipation of a customer order.

**TRANSIT INVENTORY**

Transit inventories result from the need to transport items or material from one location to another, and from the fact that there is some transportation time involved in getting from one location to another. Sometimes this is referred to as pipeline inventory. Merchandise shipped by truck or rail can sometimes take days or even weeks to go from a regional warehouse to a retail facility. Some large firms, such as automobile manufacturers, employ freight consolidators to pool their transit inventories coming from various locations into one shipping source in order to take advantage of economies of scale. Of course, this can greatly increase the transit time for these inventories, hence an increase in the size of the inventory in transit.

**BUFFER INVENTORY**

As previously stated, inventory is sometimes used to protect against the uncertainties of supply and demand, as well as unpredictable events such as poor delivery reliability or poor quality of a supplier's products. These inventory cushions are often referred to as safety stock. Safety stock or buffer inventory is any amount held on hand that is over and above that currently needed to meet demand. Generally, the higher the level of buffer inventory, the better the firm's customer service. This occurs because the firm suffers fewer "stock-outs" (when a customer's order cannot be immediately filled from existing inventory) and has less need to backorder the item, make the customer wait until the next order cycle, or even worse, cause the customer to leave empty-handed to find another supplier. Obviously, the better the customer service the greater the likelihood of customer satisfaction.

**ANTICIPATION INVENTORY**

Oftentimes, firms will purchase and hold inventory that is more than their current need in anticipation of a possible future event. Such events may include a price increase, a seasonal increase in demand, or even an impending labor strike. This tactic is commonly used by retailers, who routinely build up inventory months before the demand for their products will be unusually high (i.e., at Halloween, Christmas, or the back-to-school season). For manufacturers, anticipation inventory allows them to build up inventory when demand is low (also keeping workers busy during slack times) so that when demand picks up the increased inventory will be slowly depleted, and the firm does not have to react by increasing production time (along with the subsequent increase in hiring, training, and other associated labor costs). Therefore, the firm has avoided both excessive overtime due to increased demand and hiring costs due to increased demand. It also has avoided layoff costs associated with production cut-backs, or worse, the idling or shutting down of facilities. This process is sometimes called "smoothing" because it smoothest the peaks and valleys in demand, allowing the firm to maintain a constant level of output and a stable workforce.

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