Course No. 206: PURCHASING MANAGEMENT

Concept and scope of purchasing management, principles and objectives of purchasing, integration of purchasing with other managerial functional Areas Purchasing procedure: requisitioning. Selecting source of supply, ordering. alteration and cancellation of orders, Delivery and Invoices, purchasing forms and records, purchasing in Centralised and Decentralised organisations, purchasing in government organisations, computerised purchasing system Purchasing planning, Purchasing Policy; Purchasing Techniques ; Purchasing Research, Value Analysis, Standardisation and simplification. Organising a standardisation programme, classification and coding. Inventory Management: Meaning and functions, classification of inventory systems, selective inventory management, deterministic and probabilistic inventory models, Recent Developments in inventory management

Purchasing: it's Meaning, Definition, Importance and Objectives

Meaning and Definition: - Purchasing is the first phase of Materials Management. Purchasing means procurement of goods and services from some external agencies. The object of purchase department is to arrange the supply of materials, spare parts and services or semi-finished goods, required by the organisation to produce the desired product, from some agency or source outside the organisation.

The purchased items should be of specified quality in desired quantity available at the prescribed time at a competitive price. In the words of Alford and Beatty, "Purchasing is the procuring of materials, supplies, machines, tools and services required for equipment, maintenance, and operation of a manufacturing plant".

According to Walters, purchasing function means 'the procurement by purchase of the proper materials, machinery, equipment and supplies for stores used in the manufacture of a product adopted to marketing in the proper quality and quantity at the proper time and at the lowest price, consistent with quality desired."

Thus, purchasing is an operation of market exploration to procure goods and services of desired quality, quantity at lowest price and at the desired time. Suppliers who can provide standard items at the competitive price are selected.

Purchasing in an enterprise has now become a specialised function. It was experienced that by giving the purchase responsibility to a specialist, the firm can obtain greater economies in purchasing. Moreover purchasing involves more than 50% of capital expenditure budgeted by the firm.

According to WESTING, FINE and ZENZ "Purchasing is a managerial activity that goes beyond the simple act of buying. It includes research and development for the proper selection of materials and sources, follow-up to ensure timely delivery; inspection to ensure both quantity and quality; to control traffic, receiving, storekeeping and accounting operations related to purchases." The modern thinking is that Purchasing is a strategic managerial function and any negligence will ultimately result into decrease in profits.

Importance of Purchasing:

1. Purchasing function provides materials to the factory without which wheels of machines cannot move.
2. A 1% saving in materials cost is equivalent to a 10% increase in turnover. Efficient buying can achieve this.
3. Purchasing manager is the custodian of his firm's is purse as he spends more than 50% of his company's earnings on purchases.
4. Increasing proportion of one's requirements is now bought instead of being made as was the practice in the earlier days. Buying, therefore, assumes significance.
5. Purchasing can contribute to import substitution and save foreign exchange.
6. Purchasing is the main factor in timely execution of industrial projects.
7. Materials management organisations that exist now have evolved out or purchasing departments.
8. Other factors like: (i) Post-war shortages, (ii) Cyclical swings of surpluses and shortages and the fast rising materials costs, (iii) Heavy competition, and (iv)Growing worldwide markets have contributed to the importance of purchasing.

Objectives of Purchasing: The purchasing objective is sometimes understood as buying materials of the right quality, in the right quantity, at the right time, at the right price, and from the right source. This is a broad generalisation, indicating the scope of purchasing function, which involves policy decisions and analysis of various alternative possibilities prior to their act of purchase.

The specific objectives of purchasing are:

1. To pay reasonably low prices for the best values obtainable, negotiating and executing all company commitments.
2. To keep inventories as low as is consistent with maintaining production.
3. To develop satisfactory sources of supply and maintain good relations with them.
4. To secure good vendor performance including prompt deliveries and acceptable quality.
5. To locate new materials or products as required.
6. To develop good procedures, together with adequate controls and purchasing policy.
7. To implement such programmes as value analysis, cost analysis, and make-or-buy to reduce cost of purchases.
8. To secure high caliber personnel and allow each to develop to his maximum ability.
9. To maintain as economical a department as is possible, commensurate with good performance.
10. To keep top management informed of material development which could affect company profit or performance.
11. To achieve a high degree of co-operation and co-ordination with other departments in the organisation.

Purchasing: 6 Major Principles of Purchasing

Some of the major principles of purchasing are:

1. Right Quality 2. Right Quantity 3. Right Time 4. Right Source 5. Right Price and 6. Right Place.

1. Right Quality: The term right quality refers to a suitability of an item for the purpose it is required. For producing the goods of best quality, the best grade of raw material may be the right quality whereas for producing items of medium quality, the average lowest grade may be the right quality.

The quality of the item is called as grades. It can be measured by physical tests, chemical analysis or by any other methods depending upon the nature of a product. The use of standard specification, brand name or trade name helps in purchasing the squired qualities of materials. 'The quality must be built into the product'. It is the duty of the purchasing department to ensure that materials are purchased from those suppliers.

For creating goodwill, right production, standardisation, elimination of waste and for better results, right quality purchases are very essential. Quality for different materials is decided by the concerned departments.

In case of workshop equipment, the decision is taken by the plant engineer and for stationery it is the user department. However, purchase department may question the requirements of the different departments on the basis of its experience and suggest various alternatives. The inspection department must verify whether the goods supplied are in accordance with the order placed. Thus, the right quality is the suitability of items purchased for a given purpose. The best quality of materials purchased need not be the right quality.

2. Right Quantity: Materials purchased should be of right quantity. The right quantity is the quantity that may be purchased at a time with the minimum total cost and which obviates shortage of materials. Ensuring and maintaining a regular flow of materials for carrying the production activity is the vital aim of any purchase organisation. Excess purchases should be avoided, it results in overstocking and capital is unnecessarily blocked and inventory carrying cost goes up.

Economic Order Quantity (EOQ) helps in determining the right quantity of materials to be ordered. It is calculated by applying the following formula: EOQ =

A stands for annual consumption of material, C for cost of placing an order and S for Annual Storage and carrying cost per unit. For dediciing the amount of right quantity to be purchased, certain important factors must be considered by the management. These are the nature of the manufacturing process, the nature of material to be used, prevailing market conditions i.e., changes in the tastes and preferences of the people, cost of materials to be purchased, cost of possession and storing capacity of the organisation.

Along with the economic order quantity, there are two more concepts, viz.; bulk order quantity and arbitrary order quantity which needs to be understood.

Bulk Order Quantity is the quantity which is larger than the economic order quantity. It combines the ordering quantity of more than one order so as to round off to 3, 6 or 12 monthly requirements and place a single order for the full requirements of a period under consideration.

Bulk order quantity ensures various economies of price, lesser operational cost in the purchase department. Inexpensive and slow moving items are generally purchased in bulk quantity.

Arbitrary Order Quantity is the outcome of the weaknesses of economic order quantity and bulk order quantity. Due to varying market conditions, it is not advisable to always strictly adhere to the economic and bulk order quantities.

Certain factors viz.; uncertain order from the market, uncertain financial position, uncertain production schedule and uncertain lead time are responsible for the adoption of arbitrary order quantity on the part of the purchase manager.

3. Right Time: The time at which the purchases are to be made is of vital importance. In case of items used regularly, right time means the time when the stock reaches the minimum level. The reorder level of material is fixed for each item under the principle of right time.

Action for the purchase of new supplies should be immediately initiated, when the material reaches the reorder level. Reorder level for each type of material is calculated by applying the following formula.

Reorder level = Maximum Consumption x Maximum Reorder Period. The materials control department sends the purchase requisition to be purchase department for the purchase of materials. In case materials are required for special jobs, the Purchase Department ensures that the materials are delivered in time.

Another important factor to be considered is the delivery of materials from stores to production departments. Any under delay in supplying the materials on different jobs delays the production.

4. Right Source: Selecting the right source for the purchase of materials is an important consideration in the purchase procedure. The right source for the procurement of materials is that supplier who can supply the material of right quality as ordered, in right quantity as ordered, at a right time at which the materials were required to be supplied, at an agreed price with the supplier, who is in a position to honour the commitment without much follow- up, who has necessary financial resources and adequate man-power to handle the order and who is well established with higher reputation and proven business integrity.

The source of material should be located within a reasonable distance from the buyer's organisation. This will minimise the delivery delays, higher transportation charges and improve the personal contact between the buyer and the supplier and enable better after-sales service etc.

As far as possible the middlemen and brokers should be avoided in the purchase of materials. A direct liaison should be established with the supplier. It would be helpful in improving the quality of the material in future.

While selecting the supplier certain factors must be kept in mind, viz., location of the supplier, warehousing facilities available with the supplier, relations of the employers with the labour, credit worthiness of the supplier, size of the supplier's firm and quality control observed by the employer etc. A personal visit to prospective supplier's premises will be helpful in assessing the capabilities of the supplier.

5. <u>Right Price</u>: Determination of right price is a difficult task. It is the main object of any organisation to procure the material items at the right price. It is that price which brings the best ultimate value of the money invested in purchasing the materials. Deciding the right price of a product depends on variety of factors, viz.; quality, delivery time and ultimate life of the material, demand and supply curve, extent of competition, government restrictions, after sales services, discount offered, and terms of purchase etc. It may be pointed out here that the determination of proper price depends not only on market knowledge but also a clear understanding of the pricing process.

The buyer should keep in touch himself with the above mentioned factors in the process of determination of price. He must consider that whether a proposed item to be purchased represents the best value for money or not.
This is known as "value analysis". The prevailing market prices also provide basis for the price determination. There should be negotiation between the purchase department and the suppliers for the determination of proper price.

6. <u>Right Place</u>: Besides obtaining the materials of the right quality and quantity from the right source at the right price, it should be ensured that the materials are available at the right place. Transportation and material handling costs are greatly affected by the selection of the right place from where the materials are to be acquired. For minimising these costs, selection of right place for the acquisition of material is of utmost importance. If local as well as outside supplier fulfills these conditions, the former should be preferred. The above mentioned principles of purchasing can be summed up as the six R's of purchasing. These are also known as the "essentials" to be followed by the purchasing executive.

<u>Types of Purchasing Systems</u>

The effectiveness of purchasing activities can be enhanced by proper organization and coordination of the activities. There are four types of purchasing system:-

1. *Purchase made as per requirement*: No purchase is made in advance. Purchase is done as need arises. Method usually applied for emergency requirement or infrequent goods.
2. *Contract Purchasing*: Contract of material is given to an agency. It has an advantage that low price of those materials whose cost fluctuates highly.
3. *Market Purchase*: Purchase is made from the market to take advantage of price fluctuations.
4. *Schedule Purchasing*: It is a cyclic purchase model. A schedule of purchase is made and it is used for those commodities whose prices do not fluctuate.

Centralized purchasing means buying and managing purchases from one location for all locations within an organization. This can also be run by a central location buying in to a distribution warehouse that feeds smaller warehouses. This is called a hub and spoke system. The responsibility and authority to purchase, lease, or rent materials, supplies, goods, equipment, or services are placed with the Division of Finance and Operations, Purchasing and Stores Department.

Purchasing is centralized to:

- realize economy, efficiency, and effectiveness in the procurement function;
- pursue quality assurance and standardization;
- maintain the highest standards of ethics;

The control by a central department of all the purchasing undertaken within an organization. In a large organization centralized purchasing is often located in the headquarters. Centralization has the advantages of reducing duplication of effort, pooling volume purchases for discounts, enabling more effective inventory control, consolidating transport loads to achieve lower costs, increasing skills development in purchasing personnel, and enhancing relationships with suppliers.

Advantages of Centralized Purchasing

- *Volume purchasing* – When the district is able to purchase a single item in mass, vendors are often willing to provide a discount. Purchasing in mass to take advantage of discounts is called volume purchasing.
- *Warehouse* – In order to take advantage of volume pricing, the district purchases items in bulk. Vendors typically require that the district take delivery of the items in mass. These bulk purchases are stored in the warehouse until the items are requested by the sites.
- *Save time in researching products* – Individuals spend hours to research the products and to find best price. The purchasing department has resources to help reduce the time to research products.

Disadvantages of Centralized Purchasing

- *Good processes* are not without their shortcomings. Listed below are some of the challenges of buying in a school district and suggestions on how to help the Purchasing department minimize their effects.
- *Extended procurement time* – One problem that is commonly associated with centralized purchasing is the perception "it takes too long". In reality, the purchasing department processes vendor requisitions typically within one (1) day. Typically the delay in the request is either: time spent to research the product, funding sources (account code check and budget approval), vendor stock status, and shipping.

Decentralized purchasing is the opposite where each plant or office buys what it needs. This operation allows any employee to buy what he needs. You can also run this operation with a designated buyer assigned to the site to do the buying. The more decentralized an operation is, the less control the home office has. You have a duplication of effort in buying and less buyer specialization. You lose discounts on quantity buys. You lose freight options based on dollars or weight. Also some support is lost from the supplier as there is no single contact for the supplier to deal with. Volume buying may not be calculated for all your sites.

Advantages of decentralized purchaseing Advocates of decentralization claim that local management has the incentive to control cost when the local operation is set up as a profit center. Many companies operate with a mixed system. The central operation may buy major commodities but allow local operations to buy all MRO supplies.

It is difficult to change from decentralized purchasing to centralized purchasing. Employees feel their privileges are being taken away. They feel they are losing control of their site. Some will refuse to really cooperate in the changes in hopes to making the program look unsuccessful.

Purchasing Process -Purchasing Process includes as usual 8 main stages as follows:

1. Market survey
2. Requisitioning
3. Approving
4. Studying Market
5. Making Purchase Decision
6. Placing Orders
7. Receipting Goods and Services Received
8. Accounting Goods and Services
9. Receiving Invoices and Making Payment
10. Credit note in case of material defect

Purchasing Management Process- Purchasing Management Process consists usually of four stages:

1. Purchasing Planning 2. Purchasing Tracking 3. Purchasing Reporting 4. Negotiate

Purchasing Planning - Purchasing Planning may include steps as follows:

- Creating purchasing projects and tasks
- Providing related information (files, links, notes etc.)
- Assigning purchasing tasks to the concern person
- Setting task priorities, start/finish dates etc.
- Assigning supervisors
- Setting reminders
- Control and evaluation

Purchasing Reporting - Purchasing Reporting includes:

- comparing actual and estimated values
- calculating purchasing task and project statistics
- sorting, grouping or filtering tasks by attributes
- creating charts to visualize key statistics and KPIs

THE IMPACT OF PURCHASING MANAGEMENT - A large study based on 175 company surveys with a respond rate of 22% performed by Carr and Pearson (2002) shows that the factors strategic purchasing and Purchasing Management have a positive impact on the firm's financial performance in both small and large firms. Carr and Pearson (2002) also write that Purchasing Management and supplier involvement does affect the success of a new product introduction. This study also shows that a link exist between implementation of strategic Purchasing Management and achievements of a firm's comprehensive goals. It is also stated in the report by Carr and Pearson (2002) that it is believed that most firms recognize the importance of strategic purchasing, because they spend a large percentage of their sales on purchased inputs. Carr and Pearson (2002) also finish their study with the words "Based on this study, management should better understand the importance of Purchasing Management, supplier involvement, strategic purchasing and its relationships with firm's financial performance

Purchasing Cycle / System OR Steps in Purchasing

- Get requirement from user department with proper specification.
- Send the inquiry to the vendors(suppliers). (request quotation)
- Get the quotations from vendors.
- Make comparative statement.
- Negotiate, fix the price and terms & conditions.
- Place the order to the right vendor.
- Follow up with vendor.
- Receipt & inspection. (grn)
- Storage & record- keeping. (batching)
- Invoice & payment.

Components of purchasing

- Needs assessment
- Source identification
- Contract negotiation
- Supplier selection
- PO issuance
- Expediting / follow-up
- Performance evaluation

Purchasing objectives:

- Right quality
- Right quantity
- Right time
- Right source
- Right price

Purchasing management cycle

- Analysis
- Planning – make or buy, domestic vs. overseas, national vs. local, distributor vs. Manufacturer, purchasing timing
- Implementation
- Control
- Organisation

Purchasing role in corporate planning

- Quantity
- Time
- Money

Purchasing Procedures - Purchasing Policy The Purchasing Department is responsible for the procurement of all goods and services and applying best practices for optimizing cost savings, quality products and services, and for assuring proper inventory control and inspections as required by the College in accordance with State, City and CUNY regulations. All purchases made using tax levy (State and City funds) are subject to Finance and Education Law of the State of New York, the rules and regulations promulgated by the Office of the State and City Comptroller, and the official policies mandated by the Board of Trustees of The City University of New York. Pursuant to College Policy, employees who order and receive goods and services without an approved purchase order may be held personally liable for payment. Likewise, vendors who provide goods and services without an official approved College Purchase Order, issued only by the Purchasing Department, and may be subject to non-payment.

General Procedures

- Area and Department Heads are responsible for prudently planning for and requesting those goods and services necessary for effective operation.

- Each department should determine the source and availability of funds prior to any initiation and submission of a PURCHASE REQUISITION. Requisitions will be returned with a memo indicating insufficient funds.
- The College's official PURCHASE REQUISITION must be completed, approved and signed and then submitted to the Purchasing Department in advance of all commitments of expenditures with the exception of travel reimbursement requests. Purchase Requisitions may be obtained from the Purchasing Department or a printable copy is available on this web page.
- All purchases of goods and services including Independent Contractual services must be authorized by an official PURCHASE ORDER, signed by the Director of Purchasing or designee, prior to delivery of goods and services.
- York College's general purchasing policies are consistent with official policies mandated by the Board of Trustees of The City University of New York, New York State Comptroller's Office, and New York City Comptroller's Office.

The Purchasing Process - Purchase Requisition Form and Instructions

A PURCHASE REQUISITION is written notification to the Purchasing Department of a College department's intent to buy goods and services to be used in the conduct of College business. A purchase requisition is an internal document that is never forwarded to a vendor. All purchase requisitions must be signed by the authorized signatory for each department.

The following information must be included on all purchase requisitions:

- Department name, contact person, telephone extension, email
- Department account number or type of fund to be charged
- Suggested vendor's name, address, Federal Tax ID#, telephone, fax, email
- Itemized description of the goods and services (manufacturer, model, colour, dimensions, scope of work, quantity, etc)
- Date goods or services are needed
- Estimated cost of goods and services
- Attach vendor quotes where applicable
- Estimated shipping charges and delivery specifications or instructions
- Attach all necessary and pertinent documents
- A written justification (where applicable) for the purchase may be requested of the originating department
- Signature of the department signatory

NOTE: Departments should be aware that in addition to the above requirements, additional documentation may be requested (See Purchase Dollar Threshold Requirements) based on the dollar amount of the purchase requisition and in order to execute the PURCHASE ORDER or Contract.

Split Requisitions Departments should plan their expenses and consolidate their purchases when ordering the same or similar goods from the same vendor. The splitting of requisitions for the same or similar goods is not allowed and is considered split ordering. Combining of such requests will not only result in the requisitioner and purchasing team utilizing their time more efficiently but may be more economical and could result in higher volume discounts.

Purchase Order The PURCHASE ORDER is an official document generated by the Purchasing Department and submitted to vendors for delivery of goods and services. Required and appropriate information such as vendor name, address, total amount of purchase and Federal Tax ID is incorporated into the purchase order after the Purchasing Department has conducted appropriate procurement procedures. The Purchasing Director will review, approve and sign all purchase orders. The purchase order represents a guarantee of payments for goods or services received and completed. Vendors are prohibited from delivering goods and services without an approved and signed purchase order from the Purchasing Department.

Purchase Requisition Procedures

1 Staff person of department decides on the purchase.

2 The approval of the purchase must be verified the internal accounting department in order to make sure that there are enough funds to cover the purchase and that it is in compliance with the contract or grant and department mission.

3 If the purchase is office equipment, the staff person may consult with the Information Technology Department (ITD) in IM3 for technical expertise on what the best purchase and price would be in order to meet the needs for the specific department.

4 The internal accounting department initiates the purchase procedure by completing a telephone quotation sheet. This form requires the department to obtain quotes from three different vendors and to inquire if they are catalog vendors of a small business, minority business, or woman owned business. If the department chooses not to purchase the item from a catalog vendor, then a justification in memo form must be generated to the purchasing department explaining why one was not used.

5 When the purchase has been verified, the internal accounting department prepares the requisition form (in triplicate) and is entered into Peachtree.

6 Document is then routed to PI of the account for signature, copies are made for files, then are sent to appropriate department. Department the document was initiated to encumbers funds. Purchasing, Print Shop, Bookstore, Office Supplies, Facility Services, or Food Services. If the purchase requisition is a 26 account and is equipment being charged out of the 80 sub-account, it is routed directly to OSP for approval and then to purchasing, by-passing Contracts & Grants.

9 If the purchase requisition is an account other than a 26, the requisition goes directly toPurchasing, Print Shop, Bookstore, Office Supplies, Facility Services, or Food Services.

10 Department waits for items to be delivered. Time will vary depending on what was ordered and if the business has the item in stock. If the item is delayed, the internal accounting department uses the P.O. as a reference number to call the vendor and ask them the approximate date that the product will be delivered.

11 If the purchase is equipment with life expectancy of two years or more and is over $1,000 in value, Central Receiving will sign for the equipment and will tag as inventory. If equipment does not exceed $1,000 in value, Central Receiving does not tag as inventory.

12 Items are shipped to our department. Our department signs for them and makes sure all items are received. Equipment received must then be entered in the inventory data base by the IT group.

13 Purchases that are between $250 and $1,000 can be done ON-LINE if they are being charged out of one account only. This cannot be done if two or more accounts are being charged. A purchase requisition must be generated if there is more than one account.

Supplier Management: Six Steps to Selecting the Right Supplier

Selecting the right supplier may seem like an onerous process for your supply chain. While having a more simplistic supplier selection process may be helpful for some smaller supply chains, a more involved process of selecting the right suppliers can help many food and nutrition companies meet or exceed regulatory standards, drive customer demand and build a strong brand reputation of quality products.

Selecting the suppliers who can meet your consumers' demand for higher-quality ingredients may bring some initial costs, but it will pay off over time through consistent, high-grade materials. However, the process to find the ideal supplier is often not easy and requires discipline and hard work.

1. Identifying a Supplier Before selecting your supplier, it is important to gather the opinions of stakeholders and define the criteria for the selection process. This list of stakeholders may include members from research and development, purchasing, marketing, quality assurance and any other area of your organization that touches the supplier selection process.

During this time, it is important to identify a few suppliers to assess their capabilities and compare pricing. The supplier selection team should work with the potential suppliers to establish specifications. For example, they should explain how the supplier's materials would be used in your products and within the manufacturing process. Keep in mind that the ultimate goal is a win-win situation for the supplier and manufacturer; therefore, open and transparent communication is extremely important.

A key criterion in selecting the right supplier is value. Cost should not be the lone driver; you should instead look at the total cost of ownership, which looks at the supplier's:

- Customer service
- Delivery commitments
- Reliability and responsiveness
- Resource savings (hard and soft

2. Measuring Supply Performance Another important step of the supplier management process is developing an audit and assessment program. Best-in-class supplier programs conduct audits throughout multiple stages of the manufacturer/supplier relationship. You should always conduct an audit before the contract is signed to confirm that the supplier does not have any significant compliance or quality system failures that could affect your ability to produce top-quality products. Another reason to conduct the audit beforehand is to understand the supplier's strengths and weaknesses before the relationship becomes official.

Even after the contract is signed, you should continue auditing, basing the frequency of the audits on the criticality of the supplier. To determine the frequency, all suppliers should be categorized into a level of risk or importance. This prioritization will help you be smarter and more effective with your resources and place a higher focus on your important, high-risk suppliers, while continuing to monitor second-tier suppliers.

Beyond an established audit program, you should continuously monitor and assess each supplier's performance. You can track positive or sustained strong performances, as well as negative trends.

3. Gaining Supplier Feedback Another tool you can utilize with suppliers is a self-assessment questionnaire. The supplier self-assessment can be used to identify performance gaps, as well as discover how the supplier understands their own operation.

In addition to audits and assessments, it also is beneficial to monitor informative metrics that direct value to the business. You should discuss and select the appropriate metrics with suppliers to receive their input and understanding of purposeful measurements. Examples of these metrics include rejected lots, perfect shipments and documentation errors. The metrics selected should measure the total cost of ownership, as well as improve performance toward the maximum finished product performance.

4. Achieving Certification As your supplier relationship grows stronger, and both parties feel they are receiving positive performances, the supplier may be able to achieve a certified status. This occurs when you establish a set of selected criteria to be met by your suppliers. Certification must be obtained with sustained successful performance and can be lost with poor performance or a negative compliance outcome from an audit.

As the relationship continues to grow, the supplier also will become more integrated into your manufacturing process.

5. Developing Partnerships ultimately, the manufacturer/supplier relationship is at its best when a strategic partnership is formed, allowing full knowledge of the source of materials and ensuring high quality.

With a stronger business partnership, a supplier is more likely to:

- Anticipate what is needed from the manufacturer and begin to take the leadership role in communication.
- Notify the manufacturer if problems occur that limit production availability, or a quality issue is identified.
- Communicate production delays when downtime or maintenance is required.

This type of partnership allows for an increased understanding and mutual benefits for both parties. It cultivates stronger commitments and encourages a greater interest in success for the material and finished goods. This type of relationship is your ultimate goal.

However, there are risks associated with forging this kind of partnership. Trust in both parties becomes paramount, and both entities must ensure no potential or real conflicts of interest occur. When both parties become more reliant on each other, if there is a breakdown on either side or the relationship dissolves, there is much more to lose.

6. Ensuring Quality for Consumers Depending on the number of materials and ingredients needed, developing a supplier quality management program can be a complex and upfront investment. However, once you choose to build strong relationships with

reliable suppliers, you will have peace of mind, knowing you're delivering high quality to your consumer.
The benefits are realized when your supplier quality team is focused on issues other than material quality, and your satisfied end-users have confidence in the products you provide.

Supplier Selection Process Selecting the right supplier can help you meet the consumer demand for higher-quality ingredients—while also meeting high regulatory standards. When selecting the right supplier, manufacturers should remember to:

- Include all key internal stakeholders in the process to agree on important criteria that the supplier should meet.
- Require strong communication between the manufacturer and the supplier. Good communication might not necessarily confirm a successful relationship, but poor communication can almost guarantee a failed relationship.
- Perform audits for the selected supplier, and work with them to address any deficiencies. If the deficiencies are too great, move on to another supplier. Implement adequate monitoring to drive improvement in supplier performance.
- Assess performance through useful metrics and provide the necessary feedback to the supplier.
- Establish an effective certification program and utilize it when the supplier has met its standards.
- Motivate your suppliers to develop strategic partnerships to ensure the greatest opportunity for success for both parties.
- Invest sufficient time, effort and energy early in the relationship to set up for success.

SUPPLIER SELECTION PROCESS Choosing the right supplier involves much more than scanning a series of price lists. Your choice will depend on a wide range of factors such as value for money, quality, reliability and service. How you weigh up the importance of these different factors will be based on your business' priorities and strategy.
A strategic approach to choosing suppliers can also help you to understand how your own potential customers weigh up their purchasing decisions.
This guide illustrates a step-by-step approach you can follow that should help you make the right choices. It will help you decide what you need in a supplier, identify potential suppliers and choose your supplier.

- Thinking strategically when selecting suppliers
- What you should look for in a supplier
- Identifying potential suppliers
- Drawing up a shortlist of suppliers
- Choosing a supplier
- Getting the right supplier for your business

THINKING STRATEGICALLY WHEN SELECTING SUPPLIERS The most effective suppliers are those who offer products or services that match - or exceed - the needs of your business. So when you are looking for suppliers, it's best to be sure of your business needs and what you want to achieve by buying, rather than simply paying for what suppliers want to sell you.
For example, if you want to cut down the time it takes you to serve your customers, suppliers that offer you faster delivery will rate higher than those that compete on price alone.
For some pointers to help you identify what you want from suppliers, see the page in this guide on what you should look for in a supplier. The numbers game. It's well worth examining how many suppliers you really need. Buying from a carefully targeted group could have a number of benefits:

- it will be easier to control your suppliers
- your business will become more important to them
- you may be able to make deals that give you an extra competitive advantage

For example, if you've got a rush job for an important customer, your suppliers will be more likely to go the extra mile if you spend $1,000 a month than if you spend $250.
However, it's important to have a choice of sources. Buying from only one supplier can be dangerous -where do you go if they let you down, or even go out of business?
Equally, while exclusivity may spur some suppliers to offer you a better service, others may simply become complacent and drop their standards.

WHAT YOU SHOULD LOOK FOR IN A SUPPLIER

Reliability

Remember - if they let you down, you may let your customer down.

Quality - The quality of your supplies needs to be consistent - your customers associate poor quality with you, not your suppliers.

Value for money - The lowest price is not always the best value for money. If you want reliability and quality from your suppliers, you'll have to decide how much you're willing to pay for your supplies and the balance you want to strike between cost, reliability, quality and service.

Strong service and clear communication - You need your suppliers to deliver on time, or to be honest and give you plenty of warning if they can't. The best suppliers will want to talk with you regularly to find out what needs you have and how they can serve you better.

Financial security - It's always worth making sure your supplier has sufficiently strong cash flow to deliver what you want, when you need it. A credit check will help reassure you that they won't go out of business when you need them most.

A partnership approach - A strong relationship will benefit both sides. You want your suppliers to acknowledge how important your business is to them, so they make every effort to provide the best service possible. And you're more likely to create this response by showing your supplier how important they are to your business.

IDENTIFYING POTENTIAL SUPPLIERS You can find suppliers through a variety of channels. It's best to build up a **shortlist** of possible suppliers through a combination of sources to give you a broader base to choose from.
Recommendations - Ask friends and business acquaintances. You're more likely to get an honest assessment of a business' strengths and weaknesses from someone who has used its services.

Directories - If you're looking for a supplier in your local area, it's worth trying directories such as Yellow Pages and Thomson.
Trade associations - If your needs are specific to a particular trade or industry, there will probably be a trade association that can match you with suitable suppliers.
Business advisors - Local business-support organisations, such as chambers of commerce, can often point you in the direction of potential suppliers. You can also contact our Strategic Information Centre.
Exhibitions - Exhibitions offer a great opportunity to talk with a number of potential suppliers in the same place at the same time. Before you go to an exhibition, it's a good idea to check that the exhibitors are relevant and suitable for your business.
Trade press - Trade magazines feature advertisements from potential suppliers. You can contact our Strategic Information Centre for a list of specialist trade magazines.

DRAWING UP A SHORTLIST OF SUPPLIERS Once you've got a clear idea of what you need to buy and you've identified some potential suppliers, you can build a shortlist of sources that meet your needs.
When considering the firms on your shortlist, ask yourself the following questions:

- Can these suppliers deliver what you want, when you want it?
- Are they financially secure?
- How long have they been established?
- Do you know anyone who has used and can recommend them?
- Are they on any approved supplier lists from trade associations or government?

Do some research and try to slim your list down to no more than four or five candidates. It's a waste of time for you and the potential supplier if you approach them when there's little chance of them fulfilling your requirements.

CHOOSING A SUPPLIER Once you have a manageable shortlist, you can approach the potential suppliers and ask for a **written quotation** and, if appropriate, a sample. It's best to provide them with a clear brief summarising what you require, how frequently you'll require it and what level of business you hope to place.
Get a quotation - It's worth asking potential suppliers to give you a firm price in writing for, say, three months. You can also ask about discounts for long-term or high-volume contracts.
Compare potential suppliers - When you've got the quotation, compare the potential suppliers in terms of what matters most to you. For example, the quality of their product or service may be most important, while their location may not matter.
Price is important, but it shouldn't be the only reason you choose a supplier. Lower prices may reflect poorer quality goods and services which, in the long run, may not be the most cost effective option. Be confident that your supplier can make a sufficient margin at the price quoted for the business to be commercially viable.
Check that the supplier you employ is the one that will be doing the work. Some suppliers may outsource work to subcontractors, in which case you should also investigate the subcontractor to determine if you are happy with this arrangement.
Wherever possible it is always a good idea to meet a potential supplier face to face and see how their business operates. Understanding how your supplier works will give you a better sense of how it can benefit your business.
And remember that your business' reputation may be judged on the labour practices of your suppliers. It makes good business sense to consider the ethical dimensions of your supply chain.
Negotiate terms and conditions - Once you've settled on the suppliers you'd like to work with, you can move on to negotiating terms and conditions and drawing up a contract. See our guide on how to negotiate the right deal with suppliers.

GETTING THE RIGHT SUPPLIER FOR YOUR BUSINESS
Know your needs - Make sure you know what you need. Don't be tempted by sales pitches that don't match your requirements. Understand the difference to your business between a strategic supplier, who provides goods or services that are essential to your business - such as high-value raw materials - and non-strategic suppliers who provide low-value supplies such as office stationery. You will need to spend much more time selecting and managing the former group than the latter.
Spend time on research - Choosing the right suppliers is essential for your business. Don't try to save time by buying from the first supplier you find that may be suitable.
Ask around - People or other businesses with first-hand experience of suppliers can give you useful advice.
Credit check potential suppliers - It's always worth making sure your supplier has sufficiently strong cash flow to deliver what you want, when you need it. A credit check will also help reassure you that they won't go out of business when you need them most.
Price isn't everything - Other factors are equally important when choosing a supplier - reliability and speed, for example. If you buy cheaply but persistently let down your customers as a result, they'll start to look elsewhere.
Agree on service levels before you start - It's a good idea to agree on service levels before you start trading so you know what to expect from your supplier - and they know what to expect from you. See our guide on how to manage your suppliers.
Don't buy from too many suppliers...
It will be easier for you to manage - and probably more cost-effective - if you limit the number of sources you buy from. This is particularly the case with low value-added suppliers.
...but don't have just a single supplier - It's always worth having an alternative supply source ready to help in difficult times. This is particularly important with regard to suppliers strategic to your business' success.

Purchase Order - A **purchase order**, or PO, is a document that a company issues to a vendor to place an order for products. It outlines all of the details of the sale, including quantity of product, sales price, delivery date, terms, and requirements for the order to be fulfilled. For instance, a giant grocery store might place an order for bananas from a fruit company. The purchase order would detail how many bananas are being purchased, when they would be delivered, etc.

Purchase orders are very important forms for both the purchasing company and the business supplying the products. Especially for large businesses that have multiple locations, having a purchase order ensures that the policies of the buying company are clearly communicated and agreed to before products are sent.

Purchase orders are a critical tool in keeping inventory straight and products delivered on time. Imagine Wal-Mart, a company with thousands of locations and hundreds of thousands of products in each store, trying to organize and keep track of orders from thousands of vendors without having purchase orders and a consistent system for managing incoming products. Every inch of empty shelf space in a store is a potential loss of income. Having a purchase order system that regulates what products are ordered, when they are going to be delivered, the price the company is paying for those products, and what both companies can expect from the transaction is necessary to protect both businesses.

From a manufacturer or vendor perspective, a purchase order represents sales and revenue. It documents a company's commitment to purchase products at definite terms, which results in revenue for the supplying company. The more purchase orders, the more demand for products and the more revenue the company is earning!

Purchase Order

The PURCHASE ORDER is an official document generated by the Purchasing Department and submitted to vendors for delivery of goods and services. Required and appropriate information such as vendor name, address, total amount of purchase and Federal Tax ID is incorporated into the purchase order after the Purchasing Department has conducted appropriate procurement procedures. The Purchasing Director will review, approve and sign all purchase orders. The purchase order represents a guarantee of payments for goods or services received and completed. Vendors are prohibited from delivering goods and services without an approved and signed purchase order from the Purchasing Department.

PURCHASING ORDER TERMS AND CONDITIONS

1. **Definitions.** "Deliverables" means the goods, materials, products, software, technical data, intellectual property, drawings, personal property, personnel, services or items identified and/or listed in this purchase order for Buyer's internal use and resale.
2. **Acceptance of Purchase Order.** This purchase order constitutes Buyer's offer to Seller and shall become a binding contract upon the terms and conditions stated in this purchase order upon acceptance by Seller by any expression of acceptance, or commencement of performance, whichever occurs first. Any terms and conditions proposed by Seller in acknowledging or accepting Buyer's offer which are different from or in addition to the terms set forth in this purchase order shall not be binding upon Buyer and shall be void and of no effect, except to the extent expressly accepted in writing by Buyer's authorized procurement representative(s).
3. **Data.** Seller acknowledges that it has in its possession all applicable specifications, drawings and documents (including, without limitation, statements of work) necessary to perform its obligations under this purchase order at the price and schedule stated on this purchase order or its attachments. All such documentation shall be deemed to be a part of this purchase order.
4. **Packing and Shipping**. Deliveries shall be made as specified on this purchase order without charge for packaging or storage unless otherwise agreed in writing by Buyer. Deliverables shall be suitably packed to secure the lowest transportation costs and in accordance with the requirements of the carriers of the releases or orders subject to this purchase order. Seller shall use the carrier(s) selected by Buyer if Buyer so requests. Buyer's order numbers must be plainly marked on all packages, bills of lading and shipping orders. Buyer's count or weight shall be conclusive. Seller shall not ship in advance of schedule or make partial shipment unless otherwise agreed in writing by Buyer. Risk of loss shall be retained by Seller until delivery of the Deliverables at the location specified on this purchase order. Delivery according to schedule is a material condition of this purchase order.
5. **Taxes and Duties.** The prices stated in this purchase order include all applicable taxes and duties, except state and local sales and use taxes, which by statute may be passed on to Buyer. Such sales and use taxes shall be separately itemized in Seller's invoice. This purchase order shall include all related customs duty and import drawback rights, if any, including rights developed by substitution and rights, which may be acquired from Seller's suppliers, which Seller shall transfer to Buyer. Seller agrees to inform Buyer of the existence of all such rights, and to supply such documents as may be required to obtain such drawbacks, unless waived in writing by Buyer. Seller agrees to certify to Buyer the country of origin for Deliverables delivered under this purchase order.
6. **Payment and Prices.** Unless different payment terms are expressly stated on this purchase order, payment terms shall be thirty (30) days from Buyer's receipt of Seller's correctly presented invoice. A "correctly presented" invoice will contain this purchase order number sent to the billing address on this purchase order. Seller represents that prices quoted to or paid by Buyer shall not exceed current prices charged to any other customer of Seller for deliverables which are the same or substantially similar to, and in the same or substantially similar quantities as the Deliverables. Seller shall refund or Buyer may set off against subsequent invoices any amounts paid by Buyer in excess of such price(s).
7. **Set-off.** Buyer shall be entitled at all times to set off any amount owing at any time from Seller to Buyer (or any of Buyer’s affiliates and subsidiaries) against any amount payable at any time by Buyer (or any of its affiliates and subsidiaries) to Seller.
8. **Warranty.** Seller warrants that all Deliverables will conform to applicable specifications, drawings, descriptions, and samples, and will be of new manufacture, good workmanship and materials, and free from design defect, claim, encumbrance or lien, and be suitable for the purpose intended by Buyer. Seller warrants that it has full title, right, power and authority to enter into this purchase order and perform its obligations under the purchase order. Seller warrants that Deliverables that are services shall be performed in a professional and workmanlike manner. If the Deliverables delivered under this purchase order

do not meet the warranties specified in this purchase order or other applicable warranties, Buyer may, at its option, return at Seller's expense, the defective or nonconforming Deliverables for credit, refund or set-off, or require Seller to correct or replace, at no cost to Buyer, any defective or nonconforming Deliverables, including, without limitation, re-perform any Deliverables that are services. Return shipping to Buyer of corrected or replacement Deliverables shall be at Seller's expense. Deliverables required to be corrected or replaced (including, without limitation, the re-performance of any Deliverables that are services) shall be subject to this Section 8 and Section 9 (Inspection) in the same manner and to the same extent as Deliverables originally delivered under this purchase order. Seller's warranties shall run to Buyer, its affiliates, subsidiaries, customers or users of the Deliverables and shall not be deemed to be exclusive of any other remedy at law or in equity available to Buyer, its affiliates, subsidiaries, customers or users of the Deliverables. Buyer's inspection, approval, acceptance, use of, or payment for all or any part of the Deliverables shall in no way affect its warranty rights. Seller shall at its expense indemnify, defend and hold harmless, Buyer, its directors, officers, employees, affiliates, subsidiaries, agents, customers and end users, from any and all loss, damages or liability (including, without limitation, reasonable legal fees and costs) arising out of or resulting in any way from any defect in the Deliverables, or from any act or omission of Seller, its agents, employees or permitted subcontractors in connection with the Deliverables. This indemnification shall be in addition to Seller's warranty obligations. Deliverables, or from any act or omission of Seller, its agents, employees or permitted subcontractors in connection with the Deliverables. This indemnification shall be in addition to Seller's warranty obligations.

9. **Inspection.** The Deliverables may be inspected and/or tested by Buyer at any time, place and stage of production or distribution, and if at Seller's premises, Seller, without additional charge, shall provide all reasonable facilities and assistance required for safe and convenient inspection and testing. The foregoing shall not relieve Seller of its obligation to permit Buyer full and adequate inspection and testing away from Seller's premises. Payment shall not constitute Buyer's acceptance of the Deliverables nor impair Buyer's right to inspect and/or test the Deliverables or exercise any of its remedies. Upon notice of rejection of defective Deliverables, risk of loss of such Deliverables shall be upon Seller until redelivery, if any, to Buyer. Rejected Deliverables may be returned to Seller or held by Buyer, both at Seller's risk and expense, subject to Seller's disposal instructions.

10. **Default.** Buyer may, by written notice to Seller, cancel this purchase order or any release or order subject to this purchase order for default, (a) if Seller fails to deliver the Deliverables strictly within the time specified in this purchase order, or if no time is specified, within a reasonable time; (b) if the Deliverables delivered do not conform to this purchase order or if Seller fails to perform any of the other provisions of this purchase order, or so fails to make progress as to endanger performance of this purchase order in accordance with its terms; or (c) if Seller's financial condition shall at any time become unsatisfactory to Buyer. Upon such cancellation, Buyer shall not be liable to Seller for any amount. Seller will deliver to Buyer any of the Deliverables for which Buyer shall make written request prior to or upon cancellation, for which Buyer will pay Seller the fair value of any such Deliverables so requested and delivered. Buyer may pursue any remedies available at law or in equity and Seller shall be liable to Buyer for any and all damages suffered by Buyer by reason of Seller's default. Seller shall cooperate with any transition of the delivery of the Deliverables as reasonably requested by Buyer.

11. **Change Orders and Deliverable Substitution.** Buyer shall have the right by written notice to change the terms of this purchase order, the drawings, specifications or other descriptions, the time, method or place of delivery or the method of shipment or packaging or to suspend delivery of the Deliverables. Upon receipt of such notice, Seller shall proceed promptly to make such changes. If any such change causes a change in the cost of the Deliverables or in the time required for performance, Seller shall provide prompt notice to Buyer of any such change and an equitable adjustment shall be negotiated promptly and this purchase order shall be modified in writing accordingly. Seller shall not substitute or replace or add new raw materials or components in the Deliverables or change the specifications related to such Deliverables without first notifying Buyer in writing and receiving Buyer's written consent.

12. **Title.** Title to and the right of immediate possession of all articles, tooling, equipment, software, or materials furnished to Seller or paid for by Buyer directly or indirectly for use by Seller in connection with this purchase order shall remain with the Buyer. Seller shall be (a) responsible on a replacement cost basis for all loss or damage to such articles, tooling, equipment, software or materials while in its possession and insure its risk in this respect with adequate all risk property insurance; (b) clearly mark the same as belonging to Buyer, keep it segregated in Seller's facility and treat it confidentially as provided in this purchase order; (c) keep the same in good operating condition; and (d) use the same exclusively in connection with the delivery of the Deliverables for this purchase order and not for any production of larger quantities than specified or in advance of normal production schedules, except with Buyer's prior written consent. Upon completion of this purchase order, all articles, tooling, equipment, software, or materials furnished to Seller or paid for by Buyer shall be disposed of by Seller at Seller's expense as Buyer directs in writing. All Deliverables shall be the sole and exclusive property of the Buyer, and where applicable, shall be considered "works made for hire" under the U.S. Copyright Act (Title 17, United States Code).

13. **Intellectual Property and Proprietary Rights.** Seller shall at its expense indemnify, defend and hold harmless, Buyer, its directors, officers, employees, affiliates, subsidiaries, agents, customers and end users, from any and all loss, damages or liability (including, without limitation, reasonable legal fees and costs) for or on account of, or resulting from, any claim of infringement of any existing or future copyrights, patents, or trademarks, misappropriation of any trade secrets, or violation of any other intellectual, proprietary or industrial rights, with respect to any of the Deliverables. The fact that Buyer furnishes specifications to Seller with respect to any of the Deliverables shall neither relieve the Seller from its obligations under this purchase order nor limit Seller's liability in connection with the Deliverables, nor constitute an undertaking by Buyer to hold Seller harmless against any such claim which arises out of compliance with the specifications.

14. **Confidential Information.** Seller shall not disclose to any third party or use any confidential information of Buyer's concerning this purchase order or other material intended for use in connection with this purchase order without Buyer's prior written consent. Any knowledge or information which Seller may disclose to Buyer in connection with the purchase of any of the Deliverables shall not, unless Buyer otherwise specifically agrees in writing, be deemed to be confidential information and shall be acquired free from any restriction as part of the consideration for this purchase order.
15. **Termination.** At any time Buyer, at its option, may terminate this order for convenience in whole or in part by written notice. A stop work order or any other form of written notice requiring Seller to immediately cease performance under this purchase order shall obligate Seller to immediately stop work and take any actions necessary to mitigate the impact of such notice.
16. **Compliance with Law.** Each party shall comply with all applicable laws, including without limitation, government export control, and privacy and data protection laws.
17. **Delays.** Whenever an actual or potential labor dispute or other event beyond the reasonable control and without the fault or negligence of the Seller is delaying or threatens to delay the timely delivery of the Deliverables, Seller shall immediately give written notice of delay, including all relevant information regarding the delay, to Buyer. In addition, Seller shall take all reasonable steps to avoid or remove the cause of such delay and mitigate the harm of such delay to Buyer and will resume performance (if suspended) as soon as the cause of delay is removed. In the event the Seller's performance is delayed or is expected to be delayed by more than five (5) business days, the Buyer upon written notice to Seller may terminate this purchase order for its convenience in accordance with Section 15 of this purchase order.
18. **Assignment and Subcontract.** Neither this purchase order nor any duty or right under this purchase order shall be delegated, assigned or subcontracted without the prior written consent of Buyer. Any assignment not made in accordance with the terms and conditions of this Section is void and of no effect.
19. **Advertising.** Seller shall not, without the prior written consent of Buyer, in any manner advertise or publish the fact that Seller has contracted to furnish Buyer the Deliverables under this purchase order.
20. **Personal Injury and Property Damage Indemnification.** Seller agrees at its expense to indemnify, defend, and hold harmless Buyer, its directors, officers, employees, affiliates, subsidiaries, agents, customers and end users from any and all loss, claims and liability, including, without limitation, reasonable legal fees and costs, for death, injury or disability of any person or damage to or destruction of property (including, without limitation, the loss of use of any property or the presence of hazardous substances at any property) caused by or resulting from the acts or omissions of Seller, its agents, suppliers or employees in connection with the performance of this purchase order. During the performance of this purchase order, Seller shall maintain in full force and effect, at its sole cost and expense, reasonable insurance coverage (based on the size and revenues of Seller's business and industry norms) covering activities performed under this purchase order. Such policies shall name Buyer, its directors, officers, employees and agents as additional insured's covering activities performed under this purchase order. All policies shall provide that coverage may not be materially changed, canceled or non-renewed without thirty (30) days prior written notice to Buyer. The insurance requirements set forth in this purchase order are not intended and shall not be construed to modify, limit or reduce the indemnifications made in this purchase order by Seller to Buyer or to limit Seller's liability under this purchase order in any manner. Seller shall furnish Buyer with certificates of insurance for the coverages required under this purchase order prior to performance under this purchase order. Such insurance shall be primary to, not contributing with, and not in excess of, coverage which Buyer may carry. Seller's insurance shall contain a severability of interest provision. The insurance afforded by these policies applies separately to each insured against whom claim is made or suit is brought, in the same manner as such insured would be covered if the policy insured only such party.
21. **Hazardous Chemicals and Hazardous Materials.** Prior to shipment or transfer of any hazardous chemical(s), as defined by regulations promulgated pursuant to the Occupational Health and Safety Act ("OSHA"), Seller shall provide Buyer with a complete, up-to-date Material Safety Data Sheet and shall properly mark such hazardous chemical(s) with a label satisfying the requirements of OSHA's Hazard Communication Standard (29 CFR Part 1910.1200 et seq.). Any shipment or transfer by Seller of any hazardous material(s) (as defined by regulations promulgated by the U.S. Department of Transportation ("DOT") and Appendix A of Federal Standard number 313A), shall be conducted consistent with the requirements of DOT regulations promulgated at 40 CFR Part 171 et seq.
22. **Relationship of Parties.** The Seller and Buyer are independent contractors. Nothing in this purchase order shall be deemed to create a partnership, joint venture, franchise, employment, or agency relationship between the parties. Neither party shall have the power or authority to bind or obligate the other party.
23. **Waiver.** Any failure or delay by either party in exercising any right or remedy will not constitute a waiver.
24. **Entire Agreement.** Unless another agreement expressly references and incorporates this purchase order into such agreement (or otherwise makes this purchase order supplementary to such agreement) and such agreement provides for an order of precedence, this purchase order, together with any data referenced in Section 3 of this purchase order, constitutes the entire agreement and exclusive statement of the terms between the parties with respect to the purchase and sale of the Deliverables under this purchase order and terminates and supersedes all previous negotiations, communications, representations, or agreements between the parties. No alteration, modification or amendment of any of the provisions in this purchase order shall be binding unless in writing and signed by Buyer's authorized procurement representative(s). If any provision of this purchase order is held to be illegal, invalid or unenforceable by a court of competent jurisdiction, all other provisions shall remain in full force and effect.

25. **Governing Law and Venue.** This purchase order shall be governed by the laws of the State of California, U.S.A., without giving effect to conflicts of law principles. Seller and Buyer consent to the exclusive jurisdiction of, and venue in, the state and federal courts within San Diego County, California, U.S.A.

26. **Survival.** Any provision in this purchase order which, by its nature, would reasonably be expected to be performed after the termination of this purchase order shall survive and be enforceable after such termination.

27. **Limitation of Liability.** In no event shall Buyer be liable for any incidental, indirect, special, and consequential or punitive damages, even if Buyer knew or should have known of the possibility of such damages.

28. **<u>NON-DISCRIMINATION IN EMPLOYMENT</u>**: In accordance with Executive Order 11246, as amended by Executive Order 11375 (Equal Employment Opportunity), 38 USC 2012 (Vietnam Era Veterans Readjustment Assistance Act of 1974), Section 503 of the Rehabilitation Act of 1973 (Handicapped Regulations), and the implementing regulations found at 41 CPR 60-1&2, 41 CPR 60-250 and 41 CPR 60-741, respectively, are hereby incorporated by reference. The Seller agrees not to Discriminate against any employee or applicant for employment because of race, creed, color or national origin. The Seller will take affirmative action to ensure that Equal Employment Opportunity is implemented in employment, upgrading, demotion or transfer or recruitment advertising, layoff or termination rates of pay or other forms of compensation and selection of training including apprenticeship. All other applicable provisions of the Rules and Regulations of the Office of Federal Contract compliance are herein incorporated by reference.

TERMS AND CONDITIONS

1. ACCEPTANCE: VENDOR accepts this Purchase Order solely on the basis of the terms and conditions on the face and back hereof. Additional terms on VENDOR's form are rejected and shall be deemed a material alteration hereof, unless such terms are incorporated by direct reference on the face of this Purchase Order and attached hereto as applicable.

2. CHANGES: This Purchase Order shall not be altered, amended, supplemented or cancelled without Buyer's approval. The District shall have the right to make changes hereunder any time and VENDOR agrees to accept such changes. In the event such changes result in additional costs, the District shall make an equitable adjustment in the purchase price provided such additional costs are itemized and justified in writing, and submitted to Buyer within 10 days of receipt of the change notification.

3. ***HANDICAP ACCESSIBILITY: VENDOR hereby warrants that any hardware or software products or services to be provided under this Purchase Order comply with the accessibility requirements of section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794d), and its implementing regulations set forth at Title 36, Code of Federal Regulations, part 1194. VENDOR agrees to promptly respond to and resolve any complaint regarding accessibility of its products or services which is brought to its attention. VENDOR further agrees to indemnify and hold harmless the District, the Chancellor's Office of the California Community Colleges, and any California community college using the VENDOR's products or services from any claim arising out of its failure to comply with the aforesaid requirements. Failure to comply with these requirements shall constitute a breach and be grounds for termination of this Purchase Order.***

4. ASSIGNMENT OF PURCHASE: The VENDOR shall not assign or transfer by operation of law or otherwise any of all of its rights, burdens, duties or obligations without the prior written consent of the Chaffey Community College District, hereinafter referred to as "the District."

5. TERMINATION: The District reserves the right to terminate this Purchase Order for its own convenience with liability limited to the services or products delivered prior to the VENDOR's receipt of the District's termination notice. All blanket or standing Purchase Orders will automatically terminate at the end of the District's fiscal year without prior notice to VENDOR.

6. TAXES: The District will pay only the State Sales and Use Tax and/or the San Bernardino County Uniform Local Sales and Use Tax, as applicable. The Federal Excise Tax is not applicable to the District. The District, upon request, shall furnish the VENDOR such Federal Tax exemption certificates. VENDOR will not include taxes in unit prices or labor rates used for billing purposes. Tax may be separately itemized.

7. WARRANTY: All products, materials or services furnished under the purchase shall be in accordance with District specifications and guaranteed to be new and free from faulty design or workmanship. If upon inspection any item is found defective or of inferior quality, Buyer may return such item to VENDOR at VENDOR 's expense. Payment for any item prior to inspection shall not be construed to be an acceptance of an unsatisfactory or defective item. VENDOR shall reimburse Buyer for any amount paid to VENDOR for such returned items.

8. HEALTH & SAFETY: All materials, equipment, supplies must meet all Federal, State, and local requirements regarding Health and Safety. All shipments of hazardous and toxic material must include Material Safety Data Sheets (MSDS) pursuant to OSHA's Hazard Communication Rule 29 CFR 1919.1200, with copies sent to the Purchasing Department referencing the Purchase Order number.

9. DELIVERY/F.O.B. DESTINATION: Unless otherwise specified, the VENDOR shall be responsible for delivery and shall pay all related shipping costs, including prepaid freight changes. Time and manner of delivery are material factors in proper performance under the purchase.

10. INEMNIFICATION AND HOLD HARMLESS: VENDOR shall indemnify and hold DISTRICT its officers, employees, volunteers and agents, including the property of DISTRICT, free and harmless from any and all claims, suits, demands, causes of action, losses, damages, injuries, and expenses, rather actual or alleged, including, but not limited to, reasonable attorneys' fees, and liability arising from (i) the death or injury of any person or persons, or from the loss, damage or destruction of any property or properties caused by or connected with the actions, negligence, errors, or omissions of VENDOR or VENDOR's agents and employees, (ii) the use of any copyrighted materials or patented inventions, and (iii) VENDOR's breach of its obligations under this Purchase Order.

11. VENUE: This Purchase Order shall be governed by the laws of the State of California.
12. INSURANCE: VENDOR shall maintain Workers' Compensation insurance as required by statue and Commercial General Liability insurance adequate to protect VENDOR and VENDOR's obligations hereunder to protect the District from claims due to personal injury, including death, and damage to property, which may arise from operations under this Purchase Order. The VENDOR may be required to file with the District certificates of such insurance. Failure to furnish such evidence, if required, may be considered a material default of the VENDOR.
13. INVOICES AND PAYMENT: Unless otherwise specified, the VENDOR shall render invoices in duplicate for goods or services provided to the Accounts Payable Office at the address listed on the front of this Purchase Order. All invoices must indicate the assigned Purchase Order number. Invoices must also conform to the line items and unit prices in the Purchase Order. Unless otherwise noted, the District shall make payments on a net-30 day basis or within a reasonable time after VENDOR has completed its obligations hereunder and payment approval is granted by the authorized District Representative. The District may also require the submittal of an IRS Form W-9 for taxpayer identification. Any monies due the District from VENDOR can be set off from any monies due VENDOR from the District whether or not under this Purchase Order.
14. LICENSES AND PERMITS: The VENDOR and all of his employees or agents shall secure and maintain in force such licenses and permits as are required by law, in connection with furnishing of materials, articles or services herein listed. All operations and materials shall be in accordance with the law.
15. VENDOR: The term "VENDOR," "SUPPLIER," or "CONTRACTOR" whenever appearing in this Purchase Order or any attachments shall mean the Seller or Supplier of goods or services named on the face of this Purchase Order and all individuals, officers, directors, employees, agents, contractors, or subcontractors of such Seller or Supplier. While engaged in carrying out the terms and conditions of the purchase, the VENDOR is an independent VENDOR, and not an officer, employee or agent of the District.
16. ANTI-DISCRIMINATION: VENDOR agrees to adhere to all applicable laws that prohibit discrimination because of race, age, religion, sex, national origin, handicap, political affiliation or belief.

Purchase Order Procedures - Procedures governing purchasing should be established by the board of management, setting out the arrangements for buying and receipt of goods and accounting for them. All suppliers should be reputable, competent and Revenue compliant. Apart from routine items, purchases may only be made on foot of an approved **purchase order certified by the principal.** A detailed budget showing spending limits in all areas should be drawn up each year and strictly adhered to.

Payment should only be made on the basis of a valid invoice, delivery docket and purchase order. In general, all invoices and payments for approved purchases should be honoured within one month**.**

A tax clearance certificate is required from the supplier for purchases in excess of €10,000.

Purchasing Order Procedures

The purchase order system will ensure that all purchases are recorded on a timely basis and that the purchase is within budget.

a. Purchase Order books must be printed on pre-numbered books with the school details and logo. The books will be in triplicate form. The order books will be kept at all times in the accounts administrator's office.

b. The person requesting the goods or services will complete the purchase order in full in the Accounts Administrator's office, sign, and give it to the accounts administrator together with any supporting quotations/price documentation.

c. The accounts administrator will check the system to ensure that the goods being purchased are within the current budget for this department and will sign the order to this effect.

d. The purchase order and any supporting documentation will then be given to the principal for approval and when the order is certified by the principal it is returned to the accounts administrator.

e. The accounts administrator will record the order in full on the system and remove the first copy of the order from the book together with any supporting documentation and give it to the person who made the request.

f. The order is then placed by the person making the request. The order number must be quoted to the supplier when the order is placed and the supplier informed that all correspondence, delivery documentation and invoices will only be processed if they comply with this request.

Goods/Services are received

g. On receipt of the goods/services the person who placed the order must check the goods/service for quality, quantity and pricing against the order. The supplier must be notified immediately of any discrepancies on any of these issues and a note must be attached to the delivery documentation giving the details.

h. The delivery docket together with the order and supporting documentation is passed immediately to the Accounts Administrator so that they can update the accounts system for the receipt of the goods. The Accounts Administrator retains these on file pending the receipt of the invoice.

Purchase Invoice

i. When the invoice is received the accounts administrator will check it to the purchase order and delivery docket as to quantity and the condition of goods delivered and evidence that the service has been supplied to a satisfactory standard. The pricing and the calculations on the invoice should be checked in full. Check that the supplier has quoted the order number on the delivery documentation and the invoice.

j. Where discrepancies arise between the order/ delivery and the invoice these should be brought to the attention the person who ordered the goods and the principal. The supplier should be notified in writing.

k. Invoices which do not quote a purchase order number should be returned to the supplier unpaid. The invoice will be entered on the system and held for payment approval.

l. The checked invoice is then given to the person who ordered the goods for final approval and when they have signed it the invoice is returned to the Accounts Administrator. The invoice is then given to the principal for final approval.

m. The approved invoices are then given to the accounts administrator who will release the invoice for payment. The invoice, delivery documentation and order must then be filed in numeric order, by accounting period, and school year.

n. Each department within the school should keep their own record of goods/services purchased and reconcile it to their budget.

Difference b/w Purchase Order and Invoice

Comparison Chart

BASIS FOR COMPARISON	PURCHASE ORDER	INVOICE
Meaning	Purchase Order is a commercial instrument used for ordering goods from the supplier.	An Invoice is a commercial instrument indicating the payment 'due' against goods sold.
Raised By	Buyer	Seller
Sent to	Seller	Buyer
Effect of Acceptance	Contract of Sale	Confirmation of Sale

Definition of Purchase Order

A document used by the buyer to order required goods from the supplier is known as a purchase order. The order comprises of the list of products or services along with its agreed price the seller would offer. If accepted, it becomes a binding contract between both the parties. The purchase order is produced by the buyer and issued to the supplier for acceptance. A copy of purchase order is sent to the account payable department so that it can be matched with the invoice in the future.

It carries following details:

- Date of issue
- Purchase Order Number
- Details of Goods
- Name and Address of Buyer
- Name and Address of Seller
- Terms and Conditions
- Signature of Issuing Authority

Definition of Invoice

When the goods have been delivered to the buyer, the seller issues a document to the buyer, in order to request for payment of the goods delivered. This document is known as the invoice. It is the indicator of indebtedness of the buyer to the seller, i.e. goods of some value have been delivered to the buyer on which payment is still due. It creates a debtor-creditor relationship between buyer and seller.

Types of Invoice are pro forma invoice, commercial invoice, tax invoice, customs invoice etc. It carries following details:

- Date of Issue
- Invoice number
- Purchase Order number
- Quantity of Goods sold
- Agreed Prices
- Discount (if any)
- Taxes (if any)
- Total Amount Due
- Name and Address of the buyer
- Name and Address of the seller
- Signature of the seller or his authorized agent

Key Differences Between Purchase Order and Invoice

1. Purchase Order is created by the buyer while Invoice is created by the seller.
2. Purchase Order is issued to the seller whereas Sales Order is issued to the buyer.
3. The Purchase Order contains only purchase order number while invoice contains both purchase order number and invoice number.

Similarities

- Legal Commercial Document
- Purchase Order Number
- Details of buyer and seller

Conclusion

Purchase Order is a kind of proposal to the seller made by the buyer for entering into a contract for sale. Issuing the purchase order is the beginning of the contract which completes on the final settlement of the transaction. When goods are sent to the buyer, the seller issues an invoice in which the details of goods delivered are specified. On the acceptance of the invoice the sale is confirmed, thereafter when the payment is made the sale is completed.

Difference Between A Purchase Order And An Invoice

Purchase Order :- Purchase order is a document indicating types, quantity of products and services issued by a buyer or seller. It details the items the buyer agrees to purchase for a certain price. It also includes the payment terms, shipment, other associated terms and conditions. The customer sometimes creates standing PO. The standing or blanket PO allows a company to order the same product multiple times using the same PO number over an extended purchase period.

Purpose and Importance Of PO :- Purchase orders are typically used when a buyer wants to purchase supplies or inventory on account. It is important as you and your team have instant visibility of incoming stock; how much is coming and when is it due to turn up. A properly managed Purchase Order system will quickly tell you what's been ordered, shipped and received but not invoiced and so on. Besides that, creating POs in the system will help prevent ordering more of an item than you may need. You can also match the delivered goods against what was ordered, to prevent wrong delivery. Suppliers use PO's to fulfil their orders and payment processing. An online invoicing software makes it easy to send purchase orders to vendors online, in pre-designed templates.

Invoice :- Invoice is a document issued by a seller to a buyer indicating items sold, prices, date of shipment, delivery and payment terms. It is also called as a "bill", "statement" or "sales invoice". The term invoice indicates money the buyer owes to a seller. The invoice is also specified with the period of time after which the buyer has to make payment to the seller for the goods and services they have purchased. Modern-day invoices are transmitted online.

Importance of An Invoice :-Invoices are a great way to track your earnings, business and expenses. It gives you the view of the sale of products for inventory management and to calculate the amount of profit made. If invoices are utilized properly, they may act as a documentation for all your business transactions. Invoice reports help you to show which orders are completed and paid for and total outstanding for the customers. Besides that, you have complete financial control of your business and on-going progress. A suitable invoice management software is useful in creating and scheduling client invoices with ease.

Key Differences :-

1. The purchase order is what the buyer prepares, while the invoice is what the seller makes in lieu of the payment to be received.
2. The purchase order lists the quantity and the due date of delivery of goods, products or services purchased/ordered by the buyer, while an invoice has, on it the price of the goods, products or services being sold.
3. Both, purchase order and invoice have the same details except the technical mention for records viz. a. viz the shipping details, invoice number and purchase orders number which is additional on the invoice.

Purchasing Records	
Description	Documents payment claims made as part of the unit's programs and functions, including University-paid and University-reimbursed travel expenses Also documents history of the relations between units and individual vendors or service providers
Confidential Information Present	Information covered by non-disclosure agreements may be present in vendor relation records
Office of Record	Procurement and Distribution Services Travel Services Units using PCards
Other Offices	Convenience copies maintained by other units should be destroyed by shredding or file wiping when no longer needed for administrative purposes. Convenience copies should be kept no longer than the periods specified for the Office of Record.

Purchase Records

Purchase Records is a small record label started in 2000 by Joe Ferry, Jim McElwaine, and Karl Kramer, to showcase the talents of the students and faculty at the Purchase College Conservatory of Music. Despite only having released five CDs, the label has already garnered three Grammy nominations for Best Contemporary Folk Album, 2000 (*Public Domain*); Best Classical Vocal Performance, 2001; and Best Classical Keyboard Performance, 2002. Student work featured in the first release, *Public Domain*, includes "Mockingbird" by Regina Spektor and "House of the Rising Sun" by Roxy Perry, both of whom have gone on to solo careers.

The Purchase facilities include a 48-track studio. Releases include albums by Jacque Trussel, chairman of the college's voice department, Doug Munro, head of the jazz studies program, and Bradley Brookshire, director of graduate studies at Purchase. All proceeds from sales are donated to the conservatory's scholarship fund.

Explanation Of Purchasing Info Record

Usage: *Purchasing Info Record is a source of information for the procurement of certain material from certain vendor.*

It includes : -

1. Pricing conditions that you can store for relevant Purchasing Organization or Plant.
2. Reminders
3. Number of last Purchase Order
4. Planned Delivery Time (Lead time required by the vendor to deliver the material)
5. Tolerance Limits for Over Deliveries & Under deliveries
6. Availability Period during which the Vendor can supply the material.

Creation: We can create info record by:

1. Manual - If you create info record manually and then create PO manually, the price will be picked from the info record.

2. Automatic - If info record does not exists and you create PO manually with info record update indicator set, the info record will be created automatically without price updating, and the last PO number will be updated. Again if you create a PO for the same material the Price will be picked from the last PO which is updated in info record.

For creation auto PO, you have to create info record manually first and then maintain the source list. Then only you will be able to create auto PO. You cannot create auto PO without info record,

Types of Material Purchasing in an Organisation: Centralised and Decentralised

Purchasing can be either centralised or decentralised by keeping in view the size and requirements of an organisation. These are explained as under:

(a) Centralised purchasing: - Under centralised purchasing purchases are made at one central point for the whole organisation and material is issued to respective departments or jobs as and when needed. Centralised purchasing is suitable in cases where the organisation runs one plant. It will bring about economies of purchasing and buying in small lots will be avoided.

It ensures consistent buying policies in future and purchasing powers are concentrated in the hands of one person, the in charge of purchasing department. This type of purchasing is very helpful in quick implementation of decisions regarding purchasing.

It also ensures bulk buying which ensures favourable prices. The staff requirements under this type are limited and specialists in buying may be appointed. Centralised purchasing is further helpful to the vendors since their selling costs are reduced as they can easily co-ordinate and supply goods to a single buyer instead of large number of buyers.

The most important benefit which can be drawn from centralised buying is that it keeps the inventories in control and checks the wasteful investment in materials and equipment etc. thereby ensuring overall economy in purchasing.

Centralised purchasing suffers from certain drawbacks explained below:

(1) It has been observed that under this method supply of materials to different departments is delayed. Material requisitions are received from various departments and jobs, and distribution point is one, this leads to delays in sending materials to the respective jobs.

(2) There can be misunderstanding between the department requiring the material and the purchasing department which may lead to wrong purchases by the buying department.

(3) -in case of an organisation where different types of materials are used, centralised purchasing is not suitable, it would be difficult to maintain accounts with regard to purchase and issue of materials.

Centralized Purchasing:

In centralized purchasing buying and managing process is performed from one location toall locations within an organization. This can also be run by a central location buying into a distribution warehousethat feeds smaller warehouses. This is called a hub and spoke system.2)

(b) Decentralised purchasing: - Decentralised purchasing is just the reverse of centralised purchasing. This is suitable in organisations running more than one plant. Under this type each plant has its own purchasing agents. In other words, every department makes its own purchases. This is also called localized purchasing.

Decentralised purchasing is quite flexible and can be quickly adjusted in accordance with the requirements of a particular plant. More attention can be paid by the departmental head on buying problems as he will be carrying limited number of activities in his department and he can be held responsible for the purchase of goods and the overall performance of the plant.

The serious drawback which emerges from this type is the lack of uniformity in purchasing procedure in the organisation. At the same time uniformity in prices cannot be ensured and moreover every departmental head may not possess the calibre of an expert buyer.

This method also poses the problems of coordination among various departments of the organisation and usually leads to an unplanned buying. In comparison to centralised buying this method involves lesser economy in purchasing.

Decentralized Purchasing:

In large firms there are many branches, sections or departments. If each branch or department buys its own materials and equipment, it is known as decentralized purchasing. Following table shows the difference between centralized purchasing and decentralized purchasing

Basis of DifferentiationCentralized PurchasingDecentralized Purchasing

Meaning Purchasing decision is taken by oneCentralized unit on behalf of itsdifferent manufacturing firms.Individual make their own purchasedecision at local purchasingdepartment.SourcingGlobal sourcing is done.Local sourcing is done, firms often desires supplies from local businesses.Response timeSlow response time as purchasingdepartment will purchase the necessary items and send to other departments. Quick response time due to close contact between the user and the buyer. Standardization or Localization This ensures the same type of product is brought throughout the organizationto avoid different quality product. It understands the local needs and ensures the purchasing according to the needs of local customer. No Competition within units Purchasing is done from a central unit,so no competition among differentunits.When different units purchase thesame material, a situation created inwhich units are competing amongthemselves.Duplication of purchaseCentrally controlled purchasing reduce the amount of duplicated effort. Duplication of purchasing effort is high as the each unit has to follow the purchasing process. Negotiation Bulk purchasing is done therefore better negotiation. No bulk order is given therefore negotiation is not much favourable. Transportation Costs Low transportation costs due to larger shipment. High transportation costs due to smaller.

Purchasing in government organization

The Government Purchasing Agency is the central procurement unit of the Government of Newfoundland and Labrador, with the responsibility for managing the procurement process for goods and services on behalf of all government departments. The Agency advertises bidding opportunities relating to goods and services, as well as posting tender notices for construction and related services that are made available to this site free of charge.

U.S. Communities is the leading national government cooperative purchasing program, providing procurement resources and solutions to local and state government agencies including:

- Cities
- Counties
- Towns
- States
- Special Districts
- Boroughs
- Villages
- Schools, Universities and Colleges

With U.S. Communities, agencies can utilize competitively solicited contracts to help save time and resources while still meeting state, local and federal purchasing requirements. All cooperative purchasing contracts from U.S. Communities have been competitively solicited by a lead public agency and meet our rigorous cooperative standards and supplier commitments. Each supplier commits to delivering their best overall government pricing so you can buy with confidence.

The program delivers savings in time and dollars:

- **No Cost to Participate:** there is no cost or fee to register, no commitments and no minimum orders.
- **Best Overall Supplier Government Pricing:** by combining the cooperative purchasing power of 90,000 public agencies, suppliers commit to provide their best overall government pricing.
- **Quality brands:** thousands of the best brands in a wide variety of categories, services and solutions.
- **Integrity and Experience:** U.S. Communities government purchasing cooperative is founded by 5 national sponsors and more than 70 state, city and regional organizations.
- **Oversight by Public Purchasing Professionals:** third party audits ensure program pricing commitments are met and our Advisory Board provides on-going program leadership and direction.

View our full list of suppliers to start saving and then register to participate — it's quick, easy and completely free.

Found 25 public authorities in the category 'Professional buying organisations'

1. APUC Limited
2. Black Country Purchasing Consortium.
3. Buying Solutions.
4. Central Buying Consortium
5. Counties Furniture Group.
6. Defence Equipment and Support.
7. Derbyshire Districts Purchasing Consortium
8. Devon Procurement Services
9. Eastern Shires Purchasing Organisation.
10. Firebuy Limited
11. Government Procurement Service
12. Higher Education Purchasing Consortium, Wales.
13. Kent Buying Consortium
14. LASER Energy Buying Group
15. Local Authority Purchasing Partnership
16. London Contracts and Supplies Group
17. London Procurement Programme
18. London Universities Purchasing Consortium
19. North Eastern Purchasing Organisation
20. North Western Universities Purchasing Consortium
21. Scotland Excel
22. Southern Universities Purchasing Consortium
23. Welsh Purchasing Consortium
24. West Mercia Supplies Joint Committee
25. Yorkshire Purchasing Organisation

A computerised Purchasing system

A Company has a computerised system to keep track of their purchases. When the stock levels fall below a certain re-order level a purchases requisition is raised. Purchases requisitions are presented to the Purchases manager. He chooses a supplier for that particular item from a list of suppliers of that particular item. A purchase order is then prepared for all assigned purchases requisitions and these are printed and sent off to the suppliers. When Invoices are received from the suppliers, the invoice details are entered into the system and checked off against the purchase order. If all is well then an entry is made in the Creditor's ledger for the amount of the credit invoice. When goods are delivered the details of the delivery are entered and checked off against the original order, and if all is correct, the qty in stock field is updated accordingly in the stock table. The finance manager requests the system to produce cheques for outstanding invoices these are printed and sent off to the suppliers and an entry is made in cash book for the cheque and in the creditors ledger.

NOTE Correction from hand-out highlighted in red above.

1. Do up a DFD (context and Level 0) for this system.
2. Do up a data dictionary.

The advantages and disadvantages of computerized accounting system:

Advantages

•Faster and efficient in processing of information;

•Automatic generation of accounting documents like invoices, cheques and statement of account;

•With the larger reductions in the cost of hardware and software and availability of user-friendly accounting software package, it is relatively cheaper like maintaining a manual accounting system;

•More timely information can be produced;

•No more manual processing of the data- all automatically been posted to the various ledgers/accounts and

•Many types of useful reports can be generated for management to make decisions

Disadvantages

•Power failure, computer viruses and hackers are the inherent problems of using computerized systems;

•Once data been input into the system, automatically the output are obtained hence the data being input needs to be validated for accuracy and completeness, we should not forget concept of GIGO (Garbage In(Input) Garbage out (Output) and

•Accounting system not properly set up to meet the requirement of the business due to badly programmed or inappropriate software or hardware or personnel problems can caused more havoc and

•Danger of computer fraud if proper level of control and security whether internal and external are not properly been instituted.

Purchase Planning

2.1 General

2.1.1 The Importance of Purchase Planning

Effective purchase planning is essential to furthering the business and competitive interests of the Postal Service. As such, it requires the coordination and cooperation of a number of organizations and must address a number of topics. As stated in 2.1.2, early involvement among all of the stakeholders often proves critical to successful planning and successful purchasing. The extent of the planning will depend on the nature of the purchase and its effect on the business and competitive objectives of the Postal Service. The success of major purchases, which are those with the potential to impact these objectives, should be planned for by a purchase team that fully reflects the strategic importance of the purchase, and should involve the team's use of a wide range of supply chain business practices (such as strategic sourcing, demand analysis, prequalification, supplier selection strategy, and resource planning). The success of other purchases will not require the same level of investment, but will require some degree of planning. In all cases, the effectiveness of the purchase planning will directly affect the success of the purchase.

2.1.2 Preliminary Planning

Organizations normally plan their purchasing needs during the budget process. Because purchase planning should involve everyone with a stake in the outcome, coordination between internal postal business partners should begin as early as possible. Planning for high-dollar purchases should begin in the concept-development phase and consider best value in relation to business strategy and total cost of ownership. The goal of this preliminary planning is to define the Postal Service requirement to be purchased.

2.1.3 Purchase Planning

2.1.3.a *The Process*. Purchase planning is the process of establishing objectives and tactics to obtain the best value in a specific purchase. It is done by a purchase team made up of the Postal Service business partners with an interest in the purchase, including the organization requesting the purchase, the purchasing organization, and other organizations needed to help determine best value. The contracting officer responsible for the purchase is the business leader of the purchase team, and it is his or her responsibility to ensure that the team concentrates on purchase planning as part of an overall business strategy. As business leader, the contracting officer should also ensure that the team takes advantage of the most effective supply chain management business practices for a given purchase. Customer satisfaction and business success should be the primary focus of purchase planning as they will ultimately define best value in a purchase.

2.1.3.b *Responsibilities.* Purchase team members have specific roles in purchase planning.

1. The organization requesting the purchase:
(a) Determines the supply or service required.
(b) Helps to identify potential suppliers.
(c) Ensures that funds are available and authorized.
(d) Provides a purchase description.
(e) Prepares a price or cost estimate.
(f) Defines the period of performance or delivery.
(g) Establishes any supplier reporting requirements.
(h) Assists in developing the supplier-selection strategy and the proposal-specific performance evaluation factors
2. The purchasing organization:
(a) Through the contracting officer, serves as business leader of the purchase team.
(b) Gathers and analyzes relevant spend and demand data to identify opportunities for strategic sourcing and consolidated purchases.
(c) Provides advice and assistance.
(d) Identifies new or competitive sources, including small, minority, and woman-owned businesses (see also Handbook P-1, *General Purchasing Concepts and Practices*, section 2.3.5)**,** and, when appropriate**,** ensures that enough suppliers are available to ensure adequate competition.
(e) Prequalifies suppliers and maintains source lists.
(f) Maintains and applies cost and pricing models to optimize total cost of ownership.
3. For many purchases, the materials organization may provide specific expertise, including:
(a) Transportation planning, including FOB origin/destination price evaluation.
(b) Identifying the total cost of ownership related to logistics activities (movement, storage, redistribution, and disposal).
(c) Providing alternatives and recommendations for the ordering and delivery of supplies and services.
(d) Develops a freight transportation plan which considers alternatives and recommendations.
4. The purchase team may include other members whose specialized support (for example, legal or technical) will ensure that business considerations outside the purchasing process are included (for example, maintenance or training).

2.1.4 Market Research

2.1.4.a *Importance*. Market research is central to sound purchase planning. Market research helps determine:
1. What supplies or services are available.
2. What suppliers are available.
3. How to best state requirements.
4. Whether price or cost estimates are realistic.
5. Commodity or industry trends.

2.1.4.b *Methods.* Market research methods include:
1. Assessing whether commercial products and services meet (or are adaptable to) postal needs.
2. Surveying the state of technology, and the extent and success of commercial applications.
3. Holding industry briefings or presolicitation conferences to discuss postal needs and obtain recommendations.
4. Determining why potential suppliers did not respond to solicitations.
5. Attending conferences and researching commercially available products, industry trends, product availability, reliability, and prices.
6. Testing and evaluating commercially available products in a postal operating environment to collect reliable performance data, determine if modifications are necessary, and develop operational cost information.
7. Analyzing the purchase history of an item or service to determine the level of competition, prices, and performance results.
8. Publicizing new specifications and, when appropriate, issuing solicitations for information or planning purposes (see 4.2.2.d) far enough in advance to consider industry comments.
9. Publicizing through the Government Point of Entry (see 3.5.3) and other appropriate media, competitive purchasing or prequalification opportunities valued at more than $100,000, except:
(a) Purchase or prequalification opportunities for commercially available goods and services. If the purchase or prequalification opportunity is valued at more than $1 million, it must be publicized as discussed above;
(b) Purchase or prequalification opportunities for mail transportation and related services (see 4.4.4.d); and
(c) Certain noncompetitive contract awards.

2.1.5 Individual Purchase Plans

2.1.5.a *Responsibility*. The contracting officer determines the extent of the planning and leads the planning effort. For complex purchases, the purchasing organization, guided by the purchase team, usually prepares the plan. Plans are developed when the purchasing organization becomes aware of a customer's requirement, or receives a purchase request, statement of work, or other information sufficient to begin the planning process.

2.1.5.b *Elements*. Normally, a purchase plan should include:
1. The purpose of the purchase.
2. A statement of work that may include specifications or a product description (see 2.3.1).
3. The history of purchasing similar supplies or services.
4. Special considerations such as compatibility with other equipment; cost, schedule, or performance constraints; or environmental issues.
5. The cost estimate and availability of funds.
6. The estimated total cost of ownership.
7. Delivery schedule, handling and packaging requirements, period of performance requirements including considerations for shipping FOB origin or destination (see 2.2.5).
8. Potential risks and any plans to reduce them, including contingency plans and alternatives, and bonds.
9. The type of contract (see 2.4).
10. Supplier prequalification plans (see 3.5.2) or other approaches to the purchase.
11. Any proposal-specific performance evaluation factors crucial to the success of the purchase, and their order of importance (see 2.1.9 and 2.1.10).
12. A supplier-selection strategy, if proposal-evaluation performance evaluation factors will be used (this strategy will become part of the individual plan; see 2.1.7).
13. Sources (see Chapter 3).
14. A written description of the purchase method to be used, specifically, whether the purchase will be competitive or noncompetitive. If the purchase will be made noncompetitively, the business case for this decision must be included in the plan (see 2.1.6).
15. Quality requirements, including warranties.
16. Supplier reporting requirements.
17. Requirements for supplier data and data rights, their estimated cost, and how they will be used (see Chapter 8).
18. The potential for alternate agreements on intellectual property (see Chapter 8).
19. Postal property or facilities that will be furnished to the supplier.
20. Possible conflicts of interest (see 1.6.8).
21. End of life management (i.e. manufacture buy-back, recycling, refurbishment, sale or disposal).

2.1.5.c *Milestones.* The purchase plan must include significant milestones critical to the success of the purchase, including publicizing the purchase, issuing the solicitation, receiving proposals, evaluation, discussions, and any reviews and approvals needed. Once the purchase team has set the milestones, if the contracting officer becomes aware that changes are necessary, he or she must inform the rest of the purchase team.

Note: See 1.4.1 for information regarding required approvals for certain purchase plans.

2.1.6 Purchase Method

2.1.6.a *General*. The individual purchase plan must address the purchase method that will be used. The purchase method is the manner in which the purchase will be conducted, specifically, whether it will be competitive or noncompetitive. This decision should be reached by consensus, but if the team is unsuccessful in doing so, the contracting officer is responsible for determining the purchase method.

2.1.6.b *Competitive Purchase Method*. In most cases, competition is the most effective purchasing method because it brings market forces to bear and helps purchase teams compare the relative value of competing proposals and prices and thereby determine the best value.

2.1.6.c *Non-competitive Purchase Method*

1. *General.* In some cases, the business and competitive objectives of the Postal Service may best be met through the non-competitive purchase method. The decision to use this method must be weighed by the purchase team, and must be considered in light of the potential benefits of competition and other worthwhile business practices.
2. *Business Scenarios.* Whether the non-competitive method is appropriate depends on the particular purchase. The following four business scenarios are representative of instances in which the non-competitive method may prove the most effective:
(a) *Compelling Business Interests.* This scenario is used when the purchase team determines that a specific supplier or source can meet Postal Service needs quickly and efficiently and that the benefits of doing so outweigh those that may be realized through competition, as when the need is so urgent that the competitive method cannot add value.
(b) *Industry Structure or Practice*. This scenario is used when the industry producing or supplying the required goods or services is structured in a manner that renders competition ineffective (for example, when purchasing goods or services that are regulated, such as many utilities, or when purchasing from non-profit or educational institutions that do not compete in the market place).
(c) *Single Source*. This scenario is used when only one supplier is capable of providing the required goods or services (for example, when only one supplier has proprietary knowledge, trade secrets, or other proprietary interests in a necessary technology or when a supplier, working in partnership with the Postal Service, has developed exceptional expertise which has and will continue to further the business and competitive objectives of the Postal Service).
(d) *Superior Performance***.** This scenario is used when a supplier's superior performance, and its contributions to the Postal Service's business and competitive objectives, merit award of a particular purchase (for example, extending the term or expanding the scope of a contract when a supplier has performed at such a high level that the extension or expansion is well-deserved, or when a supplier's superior performance has made such performance beneficial to Postal Service operations).
3. *Business Case.* Purchase teams may decide to use the non-competitive purchasing method when non-competitive purchasing is deemed the most effective business practice for the given purchase. The rationale for the decision must be documented in a business case and included in the contract file. The extent and detail of the business case will depend on the particular purchase, its complexity, and its potential dollar value, but in all cases the following must be addressed:
(a) The business scenario justifying the decision, and why it is appropriate.
(b) The extent and result of market research performed to ensure that a non-competitive purchase is the most effective business practice.
(c) If applicable, whether the purchase team believes that future purchases of the goods or services should be made noncompetitively, and why.
(d) Any other issues that should be considered in the interest of sound and effective purchasing (subcontracting plans, upcoming changes in market conditions, etc.).
4. *Reviews and Approvals*
(a) The VP, SM, has delegated non-competitive review and approval authority for contracts up to and including $10 million, by letter of delegation, to the managers, Facilities, Mail Equipment, Services, Supplies, and Transportation Portfolios, and to the managers, Supply Management Operations, Supply Chain Management Strategies, and Supply Management Infrastructure, who may, consistent with those delegations, relegate, by letter of delegation, some of that authority to subordinate managers and contracting officers.
(b) If the estimated value of the non-competitive purchase is expected to exceed $10 million, the VP, SM, must give prior review and approval of either the purchase plan or proposed contract award.
5. Publicizing.

2.1.7 Supplier-Selection Strategy

2.1.7.a *General.* To obtain the best value, the purchase team should develop a supplier-selection strategy. The strategy should form the general framework for establishing the aspects of value sought in the purchase and the performance evaluation factors to be used. Purchase teams should remember that supplier-specific factors (past performance and supplier capability, see 2.1.9.c) should always be evaluated even when price may serve as the most important factor (for example, when suppliers have been prequalified). The supplier selection should be reached through the consensus of the purchase team. If consensus cannot be reached, the contracting officer, as business leader of the purchase team, has final responsibility and authority for the selection decision.

2.1.7.b *Developing Strategies*

1. Before developing a supplier-selection strategy, see 3.3 to make sure the purchase does not require using mandatory sources.
2. The supplier-selection strategy is developed by the purchase team, under the general direction of the contracting officer or purchasing organization. The evaluation team (see 2.1.8) may assist, as well as any other advisors needed.
3. The supplier-selection strategy must list the performance evaluation factors, their relative significance, and the performance evaluation method and procedures that will be used for supplier selection. Factors must be tailored to the purchase, and address all areas that will be considered in determining best value. Because mandatory requirements in solicitations limit suppliers' flexibility to propose, and constrain best value determinations, purchase teams must assure themselves that solicitation requirements do not include unnecessary minimum standards, mandatory feature callouts or other inappropriate limitations on

supplier selection. In addition, if the purchase team believes that offerors may propose more effective technical solutions than anticipated by the requirements, the solicitation should state that extra evaluation credit may be given for such solutions.

4. The strategy must also address how price will be compared with the performance evaluation factors to determine which supplier (or suppliers) offers the best value.

5. Unless suppliers have been or will be prequalified, or the noncompetitive purchase method will be used, purchase teams should remember that it is good business practice to develop strategies that invite new and emerging suppliers to compete for Postal Service purchases.

2.1.8 Evaluation Teams

2.1.8.a *General*. When a supplier-selection strategy is needed, the purchase team must establish an evaluation team (which may include members of the purchase team). Its membership depends upon the scope and complexity of the purchase, and the complexity of the performance evaluation factors that will be evaluated. When necessary, people from outside the Postal Service may be named to the evaluation team or as advisors. Caution must be exercised when appointing people outside the Postal Service to evaluation teams in order to prevent conflicts of interest (see 1.6.8).

2.1.8.b *Reports*. The evaluation team must present its findings to the purchase team in a written report with narrative statements identifying the major strengths and weaknesses of the various proposals. The report will be used to help the purchase team conduct discussions with suppliers and to select the supplier or suppliers offering the best value to the Postal Service.

2.1.9 Performance Evaluation Factors

2.1.9.a *General*

1. Performance evaluation factors provide vital information to both the purchase team and the supplier: to the first by requiring the supplier to describe its approach to the purchase and its past record of performance in the specific area; to the second by informing suppliers what particular aspects of value are sought by the Postal Service in relation to the purchase. There are two types of performance evaluation factors: proposal-specific, which address aspects of a particular purchase; and supplier-specific, which address aspects central to the supplier being evaluated. The purchase team determines which performance evaluation factors will be used in any one particular purchase. For information regarding the role of price or cost see 2.1.10; information regarding performance evaluation is in 4.2.5.

2. Risk of successful performance should almost always be considered as a performance evaluation factor. It may be included as a separate factor, or as an element of other factors.

3. There may be overlaps between supplier-specific and proposal-specific factors. This usually happens when proposal-specific factors cover areas which are also considered in evaluating a supplier's capability, such as production capacity.

4. Suppliers should be evaluated for prequalification in the same manner as for any other purchase.

2.1.9.b *Proposal-Specific Factors*

1. The appropriateness and proper weighting of proposal-specific factors are essential to effective performance evaluation. The proposal-specific factors should represent the elements of the purchase critical to its success and should be designed to achieve it. Using too many factors should be avoided, as it can unintentionally level evaluation scores (as when high scores for less significant factors offset low scores in more important factors).

2. Proposal-specific factors used in a purchase must be tailored to and consistent with the purchase. Examples of proposal-specific factors include:

(a) The supplier's understanding of the requirement.
(b) The supplier's management plan (including, where appropriate, its subcontractor plans).
(c) The qualifications and experience of the supplier's key personnel.
(d) The superiority of the supplier's technical approach.
(e) The supplier's offered delivery terms (see 2.2.5).

3. Sub factors may be established under any evaluation factor; for example, under "management plan," there could be sub factors for "organization" and "operational concepts."

2.1.9.c *Supplier-Specific Factors*

1. There are two supplier-specific factors: past performance and supplier capability. Unless price will serve as the deciding factor (see 2.1.10.e), they must be evaluated during the purchasing process regardless of the purchasing method being used.

2. *Past Performance*

(a) A company or individual that has performed well on previous contracts and has shown proven results in using supply-chain management business practices is likely to do the same on similar contracts in the future. Including past performance as an evaluation factor helps ensure quality suppliers.

(b) All past performance evaluations must include the following factors:
(1) Quality (a record of conformance to contract requirements and standards of good workmanship).
(2) Timeliness of performance (adherence to contract schedules, including the administrative aspects of performance).
(3) Business relations (a history of being reasonable and cooperative with customers; commitment to customer satisfaction; integrity and ethics).
(4) Cost control (a record of forecasting and containing costs on changes and cost-reimbursement contracts).

(c) When evaluating past performance, emphasis should be placed on similar contracts with the Postal Service. Overall performance for private and public sector customers should also be reviewed. If a newly established supplier cannot provide past performance information, the past performance of the supplier's key personnel on similar projects may be evaluated.

(d) The review of past performance should generally be limited to contracts completed within the last 3 years. However, longer periods may be reviewed when the purchase team deems they are appropriate.

3. *Supplier Capability*

(a) Supplier capability is evaluated in order to determine a supplier's ability to perform upon award of a contract. It should be used as a snapshot of the quality and reliability of that performance. The supplier must demonstrate its current capability. For joint ventures, each party must be deemed capable.

(b) Certain key areas must be considered when determining a supplier's capability. To be deemed capable, the supplier must:

(1) Have, or have the ability to obtain, resources (financial, technical, etc.) adequate to perform the work.

(2) Be able to meet the required or proposed delivery schedule, considering all existing commitments, including awards pending.

(3) Have a sound record of integrity and business ethics.

(4) Have a sound quality control program that complies with solicitation requirements.

(5) Have the necessary organization, experience, accounting and operational controls, technical skills, and production and property controls.

(6) Have, or have the ability to obtain, the necessary production, construction, and technical equipment and facilities.

(7) Be otherwise qualified and eligible to receive an award under applicable laws and regulations**.** That a supplier is suspended, debarred or otherwise declared ineligible (see 3.7.1.b), is a bar to award without regard to the weight assigned to capability as an evaluation factor.

(c) Certain business information must be obtained in order to determine that a supplier is capable. Sources of this information include:

(1) The Postal Service list of debarred and suspended suppliers, and GSA's consolidated list of suppliers debarred, suspended, or declared ineligible (see 3.7.1.b).

(2) Records and experience data, including the knowledge of other contracting officers, purchasing specialists, and audit personnel.

(3) The supplier's proposal information, business profile, financial data, information on production equipment, production data, questionnaire replies and personnel information.

(4) Subcontractors, customers, financial institutions, and government agencies who have done business with the supplier.

(5) Business and trade associations.

(d) If the required information and discussions (see 4.2.5.c) do not provide an adequate basis for determining capability, purchase teams may conduct a preaward survey, with the assistance of any needed specialists. The extent of the survey must be consistent with the dollar-value, complexity or sensitivity of the purchase, and may include any of the following:

(1) Data on hand or from other government or commercial sources.

(2) Examination of financial statements and records.

(3) On-site assessment of plant, facilities, work force, subcontractors, and other resources to be used in contract performance.

(e) Results of the preaward survey must be in writing and included with the capability determination, and the report included in the contract file. Information obtained for a determination of capability must not be disclosed outside of the Postal Service, unless disclosure is required by the Freedom of Information Act (see 1.6.5).

(f) Generally, suppliers are responsible for determining the capability of their subcontractors (but see 3.7.1.b regarding debarred, ineligible, or suspended firms), and may be required to provide evidence of a subcontractor's capability. Subcontractor capability considerations may affect whether the prime supplier is deemed capable. When necessary, subcontractor capability may be determined using the same criteria used to determine prime supplier capability.

2.1.10 Performance Evaluation and Cost/Price Factors

2.1.10.a *Decision Logic*. Using sound decision logic helps ensure that the contract is awarded to the supplier offering the best value. In establishing this logic, the relative importance of the evaluation factors and their interrelationships in various combinations must be determined.

2.1.10.b *Significance of Performance Evaluation Factors and Cost/Price Factors*. Solicitations must indicate the relative significance of the identified performance evaluation factors and the relationship of those factors to the solicitation's cost/price factors. All evaluation factors must be clearly stated in enough detail to give suppliers a reasonable opportunity to understand the aspects of value important to the Postal Service.

2.1.10.c *Scoring Systems for Performance Evaluation*. Many forms of scoring systems are suitable for performance evaluation, from adjective ratings to numerical systems, and some are more suitable than others depending on the situation. However, the scoring system should be simple and practical.

2.1.10.d *Relationship of Cost or Price Factors to Performance Evaluation Factors*. Cost or price factors (including, when appropriate, cost-related factors such as life-cycle costs and the like) are treated separately from performance evaluation factors. The relationship of cost/price factors should be stated in general terms (for example, that cost/price will be considered to be more important, less important, or as important as the performance evaluation factors, or that cost/price will be the determining factor in choosing among all offers which meet the minimum acceptable performance evaluation factors), and no solicitation should establish a strict mechanical relationship between the cost/price factors and any other factors.

2.1.10.e *Price as the Determining Factor*. When there are known sources capable of meeting the postal requirements with products of sufficient quality, or when suppliers have been prequalified, price may be the determining factor. In these cases, however, past performance and supplier capability should be reexamined before awarding the contract.

2.1.10.f *Determining Factors in Addition to Price.* When performance evaluation factors other than price are used, the decision logic must compare price differences with the value of other differences to determine which proposal offers the best value. The relative significance of the price and non-price factors should correspond to their value to the Postal Service. For example, when factors must be established to ensure minimal technical acceptability, but technical superiority at additional cost would be of no benefit, the selection should be based on price from among the proposals evaluated as minimally acceptable.

Purchasing Policy and Procedures

Purpose and application This Purchasing Policy applies to and binds all directors, managers and employees of the organisation in any situation where they are involved in a purchasing process, whether as requisitoners or specifiers, purchasers or negotiators, or those who validate or authorise payment. 'Purchasing' includes all procurement activities including leasing and hiring, and may where appropriate include other activities accompanying the life cycle of goods (or service contracts) and the end-of-life disposal of goods which have been procured (whether or not they remain in our ownership). Adherence to the Purchasing Policy is both an individual and a corporate responsibility. Wilful breach of this policy, or unauthorised departure from the Procedures derived from this Policy, may constitute a disciplinary offence.

Policy objectives The Policy commits the organisation, and every individual involved in purchasing and supply management processes within the organisation, to use their best endeavours to ensure that our purchasing and contracting activities are:

• Legal
• Accountable and auditable
• Ethically, environmentally and socially responsible
• Economically effective
• Conducive to maintaining the organisation's ability to exploit appropriate technological, commercial and organisational developments as they arise
• Capable of identifying, minimising and managing risks that may threaten the supply chain or the wider organisation
• open to continuous improvement and development, in particular by the training, develop-ment and support of staff.

Legality

Purchasing and contracting activity will fully respect and comply with:

• All applicable UK laws and regulations.
• All applicable European Union laws, directives and regulations (including those governing Public Procurement, where relevant)
• The relevant laws, regulations and so on of other territories in which organisations operate, to which we supply, or from which we source
• International laws, treaties and agreements to which the UK government is party (including, for example, any United Nations-approved trade sanctions)

Note: this includes not only those laws directly applicable to the buying and selling of goods and services - it includes amongst others the laws on:

• taxation – the purchasing department will not be a party to the evasion of income, sales, corporate, value added or other taxes, customs duties, or other charges, either by P&SM Professionals, their customers, or their suppliers
• Environmental regulations
• Employment, health and safety
• Corruption

Accountability and Auditability

The organisation will maintain systems, whether manual or electronic, that will, for all purchases, contracts and external commitments above the level of 'petty cash' and minor allowable personal expenses, record, identify and as appropriate provide justification for:

• The originator of the requirement
• The purpose for which the requisition was made
• The route by which the requisition was approved
• the methods adopted in accordance with the Procedures below, (or any variation from Procedure, with reasons) to procure the requirement, with all relevant documentation (for example Requests for Quotation, Tender documents and so on) and the reasons for decisions made
• The source of supply
• The compliance or otherwise of the goods or service, and of the supplier or contractor, with the requirement as specified in the contract or other agreement
• All actions taken to remedy any defect as recorded above; and the results
• The route by which payment was authorised, and when, to whom and in what sum any payment(s)are made.

Economic effectiveness

The organisation expends a considerable portion of its revenues on bought-in goods and services, (in some organisations this figure may approach or exceed 80%) and procuring such goods and services in the most economically effective manner is, subject to the legal, ethical and other restraints outlined above, the central role of the purchasing function. In carrying out this role, all those involved in purchasing will have regard to the following:

• the desired outcome is that of greatest value gained at lowest total cost.
• total cost will as appropriate take into account the full anticipated life-cycle costs of the goods or services, including such factors as maintenance, servicing, reliability costs, and costs of ultimate disposal where this organisation may be responsible for them
• value may and should, where appropriate, be assigned, however approximately, to such factors as sustainability, environmental and social benefits and of improving the competi-tiveness of the supplier base on which we depend

• in addition to the total cost of acquisition or ownership, it is policy to reduce where possi-ble the administrative cost of acquiring and owning goods and services. Selection of the most appropriate procedure to obtain an approximation to best value without incurring ex-cessive administrative cost (or without unduly diverting limited resources from other activi-ties and priorities) is therefore vital.

Exploitation of developments

Those responsible for purchasing will take care not to reduce or eliminate competitive development within the supply base, ensuring that the supply chain does not lose the ability to adapt to new or emerging technologies and processes

Risk management

The expenditure of resources outside the organisation, and the dependence on an external supply chain, exposes the organisation to a wide variety of risks. A significant function for the purchasing structure of this organisation is to identify, if possible minimise, and otherwise manage the likely impact of such risks (to the organisation itself and to other stakeholders). For any significant expenditure, long-term commitment, or identifiable 'pinch-point' (that is where even a small supply problem could have larger ramifications for the well-being of the organisation) formal risk assessments will be made, as appropriate, addressing:

• supply risk - risks resulting from the non-performance or poor performance of a supplier or contractor
• demand risks - arising from requistioners ordering too much, too little, or the wrong goods or services, relative to the actual need
• process risks - the risk that the way goods are used or services supplied may not be optimal for the circumstances - even if they comply with the formal requirements of the tender or contract
• control risks - risks arising from deficiencies in internal processes and procedures - includ-ing, but not confined to, procedures mandated in this document
• environmental - the impact of unpredictable hazards from Acts of God through acts of Par-liament to acts of terrorism
• social – risks arising from issues related to Corporate Social Responsibility such as Human Rights and so on.

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• social – risks arising from issues related to Corporate Social Responsibility such as Human Rights and so on.
• complying both with the letter and the spirit of the law of the country(ies) in which they operate and with which they deal and complying with all contractual obligations incurred by or on behalf of their employer.
• rejecting any business practice which might reasonably be deemed improper.

Purchasing Techniques for Effective Buying

The 6 Core Purchasing Strategies

Companies implement Purchasing strategies in order to make cost effective purchasing decisions from a group of efficient vendors who will deliver quality goods on time and at mutually agreeable terms.

These purchasing strategies may include such choices as making procurement by using centralized purchasing which is concentrating the entire procurement activities within one principal location.

Other companies may decide to undertake a single source 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 corepurchasing 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 in order to obtain the best pricing levels.

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

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.

TQM - Total Quality Methods, requires the vendors to provide an ever increasing quality service with zero errors. The supplier ensures purchasing best practices using a number of tools such as six sigma.

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.

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

Vendor Development - Some companies believe that they are working hand-in-hand with their vendors. They therefore spend some time in developing processes that assist these vendors. There may also be the situation where a company is dependent upon just one supplier for their products. If this 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.

Green Purchasing - This is one of the more common purchasing strategies for governments and local governments. This strategy champions the need for recycling and purchasing products that have a negative impact on the environment.

A company will choose purchasing strategies that promote their procurement best practices of minimizing costs, maximizing quality and ensuring that quality products are delivered on time.

Purchasing Methods- The following methods are available to initiate a purchase request or to pay for goods or services and are listed in order of the preferred method when applicable:

1. **PCard** or **Convenience Check** - The PCard is generally used to pay for certain small dollar, high volume purchases. The convenience check can be used when a vendor doesn't accept credit cards.
2. **Direct Pay Invoice**

A direct pay invoice can be used to purchase and pay for certain limited goods and/or services without a purchase order. A check will be issued to the vendor. A direct pay invoice generally requires a vendor code. (SeeDirect Pay - No Vendor Code for exceptions).

- Transactions not requiring a PO
- Entering a Direct Pay Invoice
- Direct Pay - No Vendor Code

3. **Requisition/Purchase Order (REQ/PO) -**

The requisition is an internal document used to initiate a purchase request for goods or services and should be used when the above methods cannot be utilized. Purchasing will generate a PO from the REQ document, determine the type of PO (see below) and send to the vendor.

- **Standing** - Purchase order that will have multiple orders and/or payments for goods/services or does not have a specific quantity or unit price. Typical examples include purchase orders for services, construction projects, business meals, and maintenance.
- **Regular** - Purchase order for a one-time purchase and payment for line item goods that have a specific quantity and unit price. Typical examples include purchases of furniture, computers, and equipment.
- Entering a Requisition - Module 4: Lesson 1
- Canceling a Requisition - Module 4: Lesson 2

The BSC can indicate the type of PO by specifying "Regular" or "Standing" in the comments field on the requisition.

Change Orders A change order can be processed to modify an existing purchase order. Typical changes include increasing or decreasing the dollar amount, changing FOAPAL information and changing a vendor address.

- Entering a change order - Module 4: Lesson 3
- Canceling a change order - Module 4: Lesson 4

Close, Open or Cancel a PO

To close a PO, the final payment indicator should be used on the final Banner Regular Invoice document. This will relieve any remaining encumbrance and change the PO status from open to closed. If this does not occur or it occurs in error, then

Purchasing can close or open the PO as necessary. Purchasing can also cancel a PO if it was processed in error or should no longer be honored. A change order should not be processed to close or cancel a PO.

Purchasing Research

Purchasing research is the systematic design, collection, analysis and reporting of data and findings relevant to a specific purchasing situation facing the company.

This study focused on purchasing research as a tool for public procurement in the service industry, a case study of AIICO insurance company operation in Enugu metropolis.

In order to carryout the study, the following objectives amongst others were states;

-To ascertain the proportion of purchasing bodget allocated to the purchasing research activities in a given period in AIICO Insurance Company.

-To ascertain, if the purchasing research activities increase the number of policy holders in AIICO insurance company.

-To ascertain whether purchasing research contributes to increase in public procurement in AIICO insurance company.

-To ascertain whether purchasing research creates awareness of AIICO insurance company and its services.

Based on the stated objectives, three hypotheses were formulated, they are:-

Ho: Purchasing research does not create awareness of AIICO insurance company.

HI1 Purchasing research creates awareness of AIICO insurance company.

Ho2 purchasing research does not increases the number of policy holders

HI2 Purchasing research increases the number of policy holders

Ho3 Purchasing research does not increase public procurement of AIICO Insurance Company.

HI3 Purchasing research increase public procurement of AIICO insurance company.

Extensive literature review of textbooks, newspapers, magazines business journals and some past projects of graduated students who studied related topic of the study was carried out to source secondary data. Primary data were source from respondents comprising policy holders, management and relevant staff of AIICO insurance company in Enugu.

The sample size was determined using Topmanâ€™s formular for the policy holders of AIICO Insurance company while a census was conducted for management and relevant staff of AIICO insurance company in Enugu.

The researcher used chi-square (x2) statistical method to test the hypotheses which were earlier formulated for the study. The data collected were presented on statistical tables using frequencies and percentages for analysis.

In the process of the study, the following finding were revealed.

-That AIICO insurance company at one time or the other engaged in purchasing research activities.

-That the company has a purchasing research department at the headquarters only but not at the zonal offices.

-That purchasing research activities increase the number of policy holders.

-That purchasing research activities increase the public procurement level of the company.

In view of the releasing findings, recommendations on how to apply purchasing research for the success of the company were offered. In conclusion, the ultimate aim of using purchasing research is geared towards customers satisfaction at a public procurement to the company, so AIICO Insurance Company is advised to continue putting purchasing research into effective use.

Value analysis

1.1 Definition of Value Analysis

Value Analysis can be defined as a process of systematic review that is applied to existing product designs in order to compare the function of the product required by a customer to meet their requirements at the lowest cost consistent with the specified performance and reliability needed.

This is a rather complicated definition and it is worth reducing the definition to key points and elements:

1. Value Analysis (and Value Engineering) is a **systematic, formal and organized process of analysis and evaluation**. It is not haphazard or informal and it is a management activity that requires planning, control and co-ordination.
2. The analysis concerns the **function of a product** to meet the demands or application needed by a customer. To meet this functional requirement the review process must include an understanding of the purpose to which the product is used.
3. Understanding the **use of a product** implies that specifications can be established to assess the level of fit between the product and the value derived by the customer or consumer.
4. To succeed, the **formal management process must meet these functional specification** and performance criteria consistently in order to give value to the customer.
5. In order to yield a benefit to the company, the formal review process must result in a **process of design improvements** that serve to lower the production costs of that product whilst maintaining this level of value through function.

1.2 Defining Cost and Value

Any attempt to improve the value of a product must consider two elements, the first concerns the use of the product (known as **Use value**) and the second source of value comes from ownership (**Esteem value**). This can be shown as the difference between a luxury car and a basic small car that each has the same engine. From a use point of view both cars conduct the same function – they both offer safe economical travel (**Use value**) – but the luxury car has a greater **esteem value**. The difference between a gold-plated ball pen and a disposable pen is another example. However, use value and the price paid for a product are rarely the same, the difference is actually the esteem value, so even though the disposable pen is priced at X the use value may be far less.

It is important for all managers to understand the nature of costs in the factory and for any given product. Whilst there is no direct relationship between 'Cost' (for the factory) and customer 'Value' in use and esteem, this education process is important. A shocking figure, that is often used as a general measure, is that typically 80% of the manufacturing costs of a product will be determined once the design drawing has been released for manufacturing.

The costs of production are therefore 'frozen' and determined at this point. These costs include the materials used, the technology employed, the time required to manufacture the product and such like. Therefore, the design process creates many constraints for the business and fixes a high degree of the total product cost. It is therefore a process that demands periodic review in order to recover any 'avoidable' costs that can be removed throughout the life of the product (by correcting weaknesses or exploiting new processes, materials or methods) and lowering the costs of production whilst maintaining its Use value to the customer. Basically, there are three key costs of a product:

· **Cost of the parts purchased**: These are costs associated with the supply of parts and materials.
· **Cost of direct labour** used to convert products.
· **Cost of factory overheads** that recover the expenses of production.

Although there are three elements of total cost accumulation it is traditionally the case that cost reduction activities have focused on the labour element of a product. Activities such as work-study, incentive payments and automation have compressed labour costs and as a result there is little to be gained, for most companies, in attempting to reduce this further. Instead, comparatively greater gains and opportunities lie in the redesign and review of the products themselves to remove unnecessary materials and overhead costs. This approach to the 'total costs' of a product involves taking a much broader look at the way costs in the factory accumulate and the relationship between costs and value generation. These new sources of costs and evaluations would therefore include such sources as:

· **Cost of manufacture**
· **Cost of assembly**
· **Cost of poor quality**
· **Cost of warranty**

A detailed understanding of how costs are rapidly accumulated throughout the process of design to the despatch of the product is key to exploiting the process of VA. All VA activities are aimed at the reduction of avoidable and unnecessary costs, without compromising customer value, and therefore the VA process should target the largest sources of potential cost reduction rather being and indiscriminate or unsystematic process (such as focusing on labour alone). It is therefore preferable to take the holistic approach to understanding costs and losses in the 'entire system' of design and conversion of value in order to determine how to achieve customer service 'functionality' at a minimal cost per unit.

<u>Purchasing's Role in Value Analysis: Lessons from Creative Problem Solving</u>

INTRODUCTION

Purchasing practitioners are in constant pursuit of ideas, approaches, products, and systems that enhance organizational productivity. The challenge to purchasing from the executive suite is to reduce material costs and to conduct the total acquisition process more efficiently. Unlike increases in sales, reductions in purchasing costs flow directly to the "bottom line," impacting profitability markedly.

The concept of value analysis (VA) can play an integral part in enhancing efficiency and profitability. Purchasing professionals should have an active role in their firm's value analysis process. However, in examining purchasing's participation in value analysis, it is evident that the creative element has not been fully utilized as a mechanism to increase the potential usefulness of the process. Purchasers appear to have continued to rely on traditional analytical approaches to develop new and innovative techniques and processes. While important, these approaches alone lack the utility required for successful handling of increasingly competitive and complex value analysis efforts. Thus, the underlying rationale for this article is to explore the importance of the creative problem-solving process as it relates to purchasing's participation in VA.

From a macro perspective, the domestic economy is compelled to concentrate on new and emerging approaches to meet the colossal challenges of the developing global economy. One approach is to systematically focus on the improvement of both the effectiveness and the efficiency with which purchasing and related areas in American firms conduct their activities. In particular, creative consideration of alternative approaches to the VA process must be examined and implemented if significant strides are to be made in productivity enhancement. Purchasing professionals should be in the vanguard in pressing for changes in the current way of thinking about value analysis.

At the micro level, individual firms are forced to take proactive stances in developing innovative methods of coping with declining market shares, increased competition, and shorter product life cycles. All functions in a business must work in partnership to affect some degree of change in their capability to operate more effectively. By the very nature of the purchasing function, it is in a critical position to contribute to greater profitability through increased efficiency and effectiveness.

In developing the theme of this presentation, discussions will focus on value analysis and purchasing's traditional role in the process, steps in VA, parallels between new product development and VA, specific creative approaches, and the managerial implications of the thesis.

WHAT IS VALUE ANALYSIS?

Value analysis as a concept is definitely not a new arrival on the business scene. Much of the original work was developed by Lawrence D. Miles and his colleagues at the General Electric Company near the end of World War II. Work continued into the fifties and culminated in the publication of Mile's first book in 1961. Miles described value analysis as follows:[1]

Value analysis is a philosophy implemented by the use of a specific set of techniques, a body of knowledge, and a group of learned skills. It is an organized, creative approach which has for its purpose the efficient identification of unnecessary cost, i.e., cost which provides neither quality nor use nor life nor appearance nor customer features. ...

Simplification, Standardization and Specialization

The concepts of simplification, standardization and specialization (known as three S's) are closely interrelated and lead to **interchange ability**. These concepts can be effectively used in industry to minimize unnecessary activity, reduce inventory costs, simplify controls and improve product quality. All these factors lead to higher efficiency in production.

Simplification - Simplification is a process of product analysis through which unnecessary varieties and designs are eliminated. Only a limited number of grades, types and sizes of the product are retained.

Standardization - Standardization is the second step after simplification towards interchangeable manufacturing. Having selected the varieties and grades of the products to be retained as much of its manufacturing details are standardized as possible.

Since manufacturing involves a large number of decisions from selection of raw material to the process used for finishing, standardization of some of these items reduces unnecessary repetition of work.

Use of standard components reduces inventory costs, ensures **interchange ability** and makes future maintenance easier.

It also reduces component cost since standard components are manufactures by mass production methods and are cheaper.

Selection of standard materials ensures physical performance and guarantees failure-free operation. Use of standard methods of production enables comparisons to be made of the standard and actual manufacturing time.

The purpose of standardization is, therefore, on one hand, efficiency and economy in the use of human effort and on the other economy of material varieties and stock quantities and therefore reduction in cost and increase in turnover.

What is the difference between product simplification specialization and standardization?

Answered by The Community

Standardization is a technique in which company establishes a standard such as product dimensions, size, quality and then company produces product on the basis of that standard. For example a manufacturing company produces shaft of standard shape and size.

Simplification is the technique of reducing the diversity among the products. It is the process of minimizing product items to restrict production of useless products.

Note: Simplification and standardization are closely related to each other. To get full benefit of standardization there is always a need of implementing simplification.

Advantages of standardization

Manufactures:

- Rationalize different varieties of products.
- Decrease the volume of products in the store and also the manufacturer cost.
- Improve the management and design.
- Speed up the management of orders.
- Facilitate the exportation and marketing of products.
- Simplify purchasing management

Consumer:

- Establish quality and safety level to the service and products.
- Inform to the characteristic of the products.
- Make easier the comparison between the different offers

Public service:

- Simplify the production of legal text.
- Establish quality, environmental and safety policies.
- Help to the economical development.
- Facilitate the business.

In conclusion, rules affect in the evolution of the countries making easier the development of the economy in the industrial sector and in the service sector, with the contribution to the improve of the education and the social welfare and the environmental protection.

5S workplace organisation and standardisation

5S training package with internet videos, facilitator manual and specific examples for workplace organisation and standardisation. Now available in English, Spanish, Italian, French, Arabic and Dutch. This training material has been produced in co operation with Philips Electronics, Smit Transformers, Nacco Materials Handling Group, Minkels and Timmerije (injection molding). The 5S method improves employees' ownership and leads to substantial quality improvement, cost reduction as well as product and process safety.

"This training package has helped us enormously to implement 5S in a structural way, as well as getting our operators and management team behind it. The teams themselves are now taking the initiative."

5S Introduction

The **5S** method is a structured program to implement workplace organisation and standardisation. 5S improves safety, work efficiency, productivity and ownership. And a well organised workplace motivates people.

The programme is called 5S, since all steps start with an "S".

Sort deals with the contents of a workplace, and removes all items that are not needed there.

Set in Order refers to "a place for everything, and everything in its place" to enable easy acces to needed items.

Shine refers not just to cleaning, but to "being proud" about the way the workplace is organised.

Standardise refers to having standards that everyone has to adhere to. Visual management is an important aspect to facilitate easy understanding of these standards.
Sustain refers to training of all employees and communication to all employees to ensure 5S application.
The 5S management program facilitates an excellent performance:
Safety: a well organised and orderly workplace is a safer workplace. 5S activities remove clutter, visual indicators alarm people for hazardous situations.
Improving production efficiency: 5S supports a smooth production process in various ways. Searching for tools is eliminated, flow principles are applied, tools storage is done where they are needed most. Location indicators visualise how things have been organised, and non conformaties are seen at once.
Quality improvement: Daily activities like inspection help to keep the production process in the right condition. Defects are prevented, because deviations are spotted before they result into defects.
Controlling your workplace: 5S helps to control the workplace by:
- determining what is needed, and where it is needed.
- defining the appropriate location for tools and other materials.
- maintaining these standards.

classification and coding

Concept And Meaning of Classification and Codification Of Materials

Classification and codification of materials are steps in maintaining stores in a systematic way. Materials are classified in such way that storing, issuing and identifying of materials become easy. Generally, materials are classified on the basis of their nature. Materials can also be classified on the basis of quality and utility. For example, materials may be classified as raw materials, consumable stores, components, spares and tools. Thus classifying materials on different bases such as nature, quality and utility is called classification of materials.
For the purpose of identification and convenience in storage and issue of materials, each item of material is given a distinct name. Such a process of giving distinct names and symbols to different items of materials is called codification of materials.
Good store-keeping requires proper classification and codification of various items of stores on stock. Stores are generally classified either by their nature or by their usage. The former method of classification or classification by the nature of materials is most commonly used. Under this method of classification, the various items of stores are divided into specific groups like construction materials, belting materials, consumable stores, and spare parts and so on. All the items are grouped, so that each item of stores will be conveniently codified on alphabetical, numerical or alpha-numerical basis and given a distinctive store code number.

Numerical Codification System

In numerical codification, each item is allotted a number, the numbering may be straight or in groups or blocks. This method is very suitable for those companies where the number of items is very large.

Alphabetical Codification System

In alphabetical codification, each item is denoted by a combination of the alphabets, for example, A for nut, B for screw and so on. This system is not suitable if there is large number of store items.

Alpha-numeric Codification System

In alpha-numeric codification, alphabets along with numbers are used for coding.

Decimal Codification System

The decimal codification system is more commonly used. The number of digits in the code will depend upon the extent of classification required. The greater the number of details to be covered, the greater will be the number of digits.

Advantages Of Classification And Codification Of Materials

Following are the advantages of classification and codification of materials
*Quick and easy identification of materials.
* Helps ensure a proper material control.
* Secrecy of materials.
* Saving of time in material handling.
* Eliminating the chances of wrong issue.

Coding and Classification

Intelligence is at the heart of every successful business and organisation. Intelligence today means the ability to make the right decisions in the context of a competitive environment. Technology and the Internet are being used in new ways to streamline processes and automate routine, low value tasks, within organisations and with customers and suppliers.
Information about Coding and Classification: Maximising Returns from Purchasing Data
How organisations actually make the most of their purchasing data and information which is being collected through the use of technology, is often the last issue to be considered in a broad improvement strategy. One of the last considerations, data, has the greatest potential for success or failure. Purchasing data has a wide variety of uses, varying from operational management of suppliers and identification of rationalisation opportunities to supporting the commercial negotiation process and management of multi-million pound contracts. It is needed to support both private and public sector organisations where best value for money and quality are prime business drivers. While it is easy to view IT systems as a barrier to getting at the right data, often the main problem is that insufficient thought is given to the organisation's need for information and decision-making. Success relies on understanding what the organisation wants to achieve. Reaching that goal can depend on how information is classified and stored. The issues are quite logical, but are management rather than technical considerations. This

guide has proved very popular since it was first produced in 2002 as it provided an introduction to purchasing coding and classification for the first time. It has been updated to reflect new developments, but has stood the test of time well. It provides:

- Good practice guidance in helping organisations wishing to adopt or review their purchasing coding and classification structures
- Non sector specific advice to any organisation that finds the quality of its purchasing data a barrier to making further progress in achieving goals and targets.
- Clear evidence that purchasing coding and classification is a strategic issue for business management, even if implementation falls to others in operational areas.
- Useful lists of contacts which can be used to gather the latest information as new developments are made

Although usually hidden in systems, coding and classification gives meaning to trading information passing through an organisation's IT systems. For example, analysis can be made of spend levels and profiles of individual or groups of products and services. These can then be matched against things, such as suppliers in that market, distribution of current business, off-contract spend and market trends. At this point information becomes meaningful and better decisions should be forthcoming.

What is coding and classification?

Broadly speaking, coding and classification is about using a number or set of alphanumeric characters to:

- Identify a specific thing; or
- Group similar things together.

For example, a bar code number on a can of fizzy drink identifies what the drink is, who manufactures the drink and the unit and pack size of the fizzy drink. This particular code is known as an identification code as it has no relation to other codes and wouldn't be used to group products together for analysis. It is important to distinguish between coding and classification as they support totally different business roles. Adopting the wrong approach can present significant challenges by distorting the information available to the point that it cannot support the business requirement for which it was intended.

Coding for identification

Identification codes are used for recording and tracking items and are used for inventory management, point of sale transactions or historical record keeping. An identification code can also identify other information such as:

- Address/Location identifiers
- Language identifiers
- Unit of measures or issue
- Currency identifiers
- Country identifiers
- Price/cost identifiers

Classification for analysis

A classification structure logically groups similar things together into classes or families for the purpose of analysis. Hierarchical classifications allow analysis to be done at macro or micro levels, depending on business need. The need may be overall financial reporting, budgetary control, project reporting, product costing or purchasing performance review. For example, the purchase of a computer mouse may need to be analysed at macro level under "IT spend" or micro level under "computer peripherals spend".

Classifications are used for analysing, searching and decision-making. Classifications can be used for expenditure analysis, contracts registers and product searches in electronic catalogues (See later section - Where to code and classify).

For the purposes of this paper, the term "coding" means a value that unambiguously identifies a specific thing. "Classification" means a value that groups related things together for analysis.

Coding and classification for services

The purchase of business services such as the use of contractors, consultants and temporary staff can represent around 75% of the total purchasing spend in many organisations and are often high in value with significant numbers of transactions associated. Yet their purchase is not always handled, let alone managed, through the purchasing function. Some argue that buying services needs a different process to a commodity purchase, which suggests that services are considered a "black box" where control, transparency and analysis cannot apply.

Arguably there are variations in the complexity of the acquisition process, but that process still follows the same steps as any other in the purchasing cycle. They can, therefore, be purchased, controlled, managed and analysed in the same way. Services should be coded and classified in the same way as products, particularly where they account for a significant part of the purchasing spend. Units of service supply (e.g. days, projects, outcomes) can be quantified and therefore, measured. They also represent a strong opportunity for potential rationalisation and the introduction of streamlined contractual arrangements, which will be very difficult to do without a hierarchical classification in place.

Until recently, services have been under-represented in the commonly available coding and classification structures, but that situation has now changed. The shortage of available classification structures in the past is no reason to exclude services purchasing or analysis from your business plan.

Inventory Management

In any business or organization, all functions are interlinked and connected to each other and are often overlapping. Some key aspects like supply chain management, logistics and inventory form the backbone of the business delivery function. Therefore these functions are extremely important to marketing managers as well as finance controllers.

Inventory management is a very important function that determines the health of the supply chain as well as the impacts the financial health of the balance sheet. Every organization constantly strives to maintain optimum inventory to be able to meet its requirements and avoid over or under inventory that can impact the financial figures.

Inventory is always dynamic. Inventory management requires constant and careful evaluation of external and internal factors and control through planning and review. Most of the organizations have a separate department or job function called inventory planners who continuously monitor, control and review inventory and interface with production, procurement and finance departments.

Defining Inventory

Inventory is an idle stock of physical goods that contain economic value, and are held in various forms by an organization in its custody awaiting packing, processing, transformation, use or sale in a future point of time.

Any organization which is into production, trading, sale and service of a product will necessarily hold stock of various physical resources to aid in future consumption and sale. While inventory is a necessary evil of any such business, it may be noted that the organizations hold inventories for various reasons, which include speculative purposes, functional purposes, physical necessities etc.

From the above definition the following points stand out with reference to inventory:

- All organizations engaged in production or sale of products hold inventory in one form or other.
- Inventory can be in complete state or incomplete state.
- Inventory is held to facilitate future consumption, sale or further processing/value addition.
- All inventoried resources have economic value and can be considered as assets of the organization.

Different Types of Inventory

Inventory of materials occurs at various stages and departments of an organization. A manufacturing organization holds inventory of raw materials and consumables required for production. It also holds inventory of semi-finished goods at various stages in the plant with various departments. Finished goods inventory is held at plant, FG Stores, distribution centers etc. Further both raw materials and finished goods those that are in transit at various locations also form a part of inventory depending upon who owns the inventory at the particular juncture. Finished goods inventory is held by the organization at various stocking points or with dealers and stockiest until it reaches the market and end customers.

Besides Raw materials and finished goods, organizations also hold inventories of spare parts to service the products. Defective products, defective parts and scrap also forms a part of inventory as long as these items are inventoried in the books of the company and have economic value.

Types of Inventory by Function

INPUT	**PROCESS**	**OUTPUT**
Raw Materials	Work In Process	Finished Goods
Consumables required for processing. Eg : Fuel, Stationary, Bolts & Nuts etc. required in manufacturing	Semi Finished Production in various stages, lying with various departments like Production, WIP Stores, QC, Final Assembly, Paint Shop, Packing, Outbound Store etc.	Finished Goods at Distribution Centers through out Supply Chain
Maintenance Items/Consumables	Production Waste and Scrap	Finished Goods in transit
Packing Materials	Rejections and Defectives	Finished Goods with Stockiest and Dealers
Local purchased Items required for production		Spare Parts Stocks & Bought Out items
		Defectives, Rejects and Sales Returns
		Repaired Stock and Parts
		Sales Promotion & Sample Stocks

Inventory Management - a vital cog in the wheel

Inventory management or control refers to the management of idle resources which have future economic value. Alternatively, Inventory may be defined as usable but idle resources that have economic value.

Inventory management is one important aspect of the total management of an enterprise. It is ultimately the responsibility of the top management to achieve trade offs among marketing, finance, production and other functions so as to obtain, as far as possible, an optimized and relatively balanced trade off so as to maximize the overall performance of the enterprise.

This has to be not only in the short-run but also keeping the long run interests of the Company in view.

Inventory Management refers to maintaining , for a given financial investment, an adequate supply of something to meet an expected demand pattern.

It thus deals with determination of **optimal policies and procedures** for procurement. **In business management,** inventory consists of a list of goods and materials held or available in stock.

Management of inventory or Inventory management is all about handling functions related to the tracking and management of material. **Inventory management** is very important in the case of Production Oriented Enterprises. However, it is also relevant for the Service Sector. In India, the emphasis in the early years was on production and on acquiring the skills and capability to manufacture a host of items required to meet the vast need of the country which had just achieved independence and had embarked on a program of industrialization. Therefore, attention got focused on marketing and on profitability.

the inventory balances, setting targets, providing replenishment techniques, reporting actual and projected inventory status. The **task of ABC analysis**, lot tracking, cycle counting support etc. can even be a part of inventory management.

Inventory control is concerned with minimizing the total cost of inventory. The three main factors in inventory control decision making process are:

- **The cost of holding** the stock (e.g., based on the interest rate).

  The cost of **placing an order** (e.g., for row material stocks) or the set-up cost of production.

  The cost of **shortage**, i.e., what is lost if the stock is insufficient to meet all demand.

The third element is the most difficult to measure and is often handled by establishing a "service level" policy, e. g, certain percentage of demand will be met from stock without delay.

Terminology used in Inventory management / control :

Maximum Limit : When devising a suitable Inventory model ,the Maximum limit establishes the upper limit to which the stock of an inventory item shall be allowed.

Minimum Limit : It is the lower limit to which the stock can be allowed to fall in course of replenishment of the stock of an item. Normally, this is taken to be the safety stock also.

Safety Stock : This is the stock that is maintained to counter the variation in demand of an item during the replenishment lead time.

Demand or Usage: Replenishment of stock and usage of an item is an ongoing phenomenon in inventory control. Demand thus is the rate of usage of an item. Over a period of time demand is considered to be stable. However , demand can be seasonal or cyclical in nature depending upon an item's nature.

<u>**Need for Inventory Management**</u> - Why do Companies hold Inventories ?

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.

Reasons why organizations maintain Raw Material Inventory

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.

1. **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 SKU as well as batch quantities.

Holding inventories at a nearby warehouse helps issue the required quantity and item to production just in time.

2. **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.

3. **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.

4. **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.

5. **Reduce Transit Cost and Transit Times -** In case of raw materials being imported from a foreign country or from a far away 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.

6. **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.

Holding inventories help the companies remain independent and free from vendor dependencies.

Inventory Control - Inventory Audits and Cycle Counts

Any inventory of Raw materials, finished goods as well as Intermediate in process inventory has an economic value and is considered an asset in the books of the company. Accordingly any asset needs to be managed to ensure it is maintained properly and is stored in secure environment to avoid pilferage, loss or thefts etc.

Inventory control assumes significance on account of many factors.

First of all inventory of raw materials as well as finished goods can run in thousands of SKU varieties. Secondly inventory can be in one location or spread over many locations. Thirdly inventory may be with the company or may be under the custody of a third party logistics provider. These factors necessitate inventory maintenance mechanisms to be devised to ensure inventory control.

Inventory control is also required as an operational process requirement. Inventory is has two different dimensions to it. On one level it is physical and involves physical transactions and movement of inventory. While on the other hand, inventory is recognizable by the book stock and the system stocks maintained. This necessitates inventory control mechanism to be implemented to ensure the book stocks and the physical stocks match at all times.

Thirdly the inventory always moves through supply chain and goes through various transactions at various places. The number of transactions and handling that it goes through from the point of origin to the point of destination is numerous. Therefore it becomes essential to control inventory and have visibility through the pipeline including transit inventory.

Inventory control is exercised through inventory audits and cycle counts. An inventory audit essentially comprises of auditing the books stocks and transactions and matching physical stocks with the book stock.

Cycle counts: Cycle count refers to the process of counting inventory items available in physical locations. Depending upon the nature of inventory, number of transactions and the value of items, cycle count can be carried on periodically or perpetually.

1. **Daily Cycle Count:** Normally where the number of SKUs is very high coupled with high n umber of transactions and through put, daily cycle count is initiated, where in a certain percentage of locations or SKUs are counted on daily basis and physical stock is compared with system stock. By the end of the month all of the stocks would have been covered once in cycle count.

Inventory system throws up a count list based on an analysis of the movements of fast moving SKUs along with other attributes like value etc. In some of the system, inventory controllers can set up the attributes for each cycle count.

2. **Quarterly & Half Yearly Cycle Counts:** End of the sales quarter or end of half yearly sales, finished goods and spare parts are normally covered under inventory audit and a 100% cycle count is carried out.
3. **Wall to Wall Cycle Count:** End of financial year and closing of books entails doing wall to wall cycle count of all stocks lying in all locations and tallying with books of account. This is a mandatory audit requirement and until stock figures are reconciled, certified by auditors and published, New Year books of accounts cannot be started a fresh.

How the audit process works?

Except for daily cycle counts, all other cycle counts entail counting hundred percent of all the stocks by stopping all transactions during the counting period. System transactions are also frozen until the count is completed.

Inventory system throws up count list with SKU number, description and location number. The operator goes to the location, checks the SKU, counts the qty available and updates the list, which is then fed into the system. The system reconciles the physical quantity with system quantity and throws up discrepancy report, which is further worked upon to tally and adjust inventory.

Types of Inventories - Independent and Dependant Demand Inventories

Inventory Management deals essentially with balancing the inventory levels. Inventory is categorized into two types based on the demand pattern, which creates the need for inventory. The two types of demand are Independent Demand and Dependant Demand for inventories.

- **Independent Demand -** An inventory of an item is said to be falling into the category of independent demand when the demand for such an item is not dependant upon the demand for another item.

Finished goods Items, which are ordered by External Customers or manufactured for stock and sale, are called independent demand items.

Independent demands for inventories are based on confirmed Customer orders, forecasts, estimates and past historical data.

- **Dependant Demand -** If the demand for inventory of an item is dependant upon another item, such demands are categorized as dependant demand.
  Raw materials and component inventories are dependant upon the demand for Finished Goods and hence can be called as Dependant demand inventories.
  Take the example of a Car. The car as finished goods is an held produced and held in inventory as independent demand item, while the raw materials and components used in the manufacture of the Finished Goods - Car derives its demand from the demand for the Car and hence is characterized as dependant demand inventory.
  This differentiation is necessary because the inventory management systems and process are different for both categories. While Finished Goods inventories which is characterized by Independent demand, are managed with sales order process and supply chain management processes and are based on sales forecasts, the dependant demand for raw materials and components to manufacture the finished goods is managed through MRP -Material Resources Planning or ERP - Enterprise Resource Planning using models such as Just In Time, Kanban and other concepts. MRP as well as ERP planning depends upon the sales forecast released for finished goods as the starting point for further action.
  Managing Raw Material Inventories is far more complicated than managing Finished Goods Inventory. This involves analyzing and co-coordinating delivery capacity, lead times and delivery schedules of all raw material suppliers, coupled with the logistical processes and transit timelines involved in transportation and warehousing of raw materials before they are ready to be supplied to the production shop floor. Raw material management also involves periodic review of the inventory holding, inventory counting and audits, followed by detailed analysis of the reports leading to financial and management decisions.
  Inventory planners who are responsible for planning, managing and controlling Raw Material inventories have to answer two fundamental questions, which can also be termed as two basic inventory decisions.
  a. Inventory planners need to decide how much of Quantity of each Item is to be ordered from Raw Material Suppliers or from other Production Departments within the Organization.
  b. When should the orders be placed?

Answering the above two questions will call for a lot of back end work and analysis involving inventory classifications and EOQ determination coupled with Cost analysis. These decisions are always taken in co-ordination with procurement, logistics and finance departments.

<u>6 Most Important Techniques of Inventory Control System</u>

Some of the most important techniques of inventory control system are: 1. Setting up of various stock levels. 2. Preparations of inventory budgets. 3. Maintaining perpetual inventory system. 4. Establishing proper purchase procedures. 5. Inventory turnover ratios. and 6. ABC analysis.

1. Setting up of various stock levels:

To avoid over-stocking and under stocking of materials, the management has to decide about the maximum level, minimum level, re-order level, danger level and average level of materials to be kept in the store.

These terms are explained below:

(a) Re-ordering level: - It is also known as 'ordering level' or 'ordering point' or 'ordering limit'. It is a point at which order for supply of material should be made.

This level is fixed somewhere between the maximum level and the minimum level in such a way that the quantity of materials represented by the difference between the re-ordering level and the minimum level will be sufficient to meet the demands of production till such time as the materials are replenished. Reorder level depends mainly on the maximum rate of consumption and order lead time. When this level is reached, the store keeper will initiate the purchase requisition.

Reordering level is calculated with the following formula:

Re-order level =Maximum Rate of consumption x maximum lead time

(b) Maximum Level: - Maximum level is the level above which stock should never reach. It is also known as 'maximum limit' or 'maximum stock'. The function of maximum level is essential to avoid unnecessary blocking up of capital in inventories, losses on account of deterioration and obsolescence of materials, extra overheads and temptation to thefts etc. This level can be determined with the following formula. Maximum Stock level = Reordering level + Reordering quantity —(Minimum Consumption x Minimum re-ordering period)

(c) Minimum Level: - It represents the lowest quantity of a particular material below which stock should not be allowed to fall. This level must be maintained at every time so that production is not held up due to shortage of any material.

It is that level of inventories of which a fresh order must be placed to replenish the stock. This level is usually determined through the following formula:

Minimum Level = Re-ordering level — (Normal rate of consumption x Normal delivery period)

(d) Average Stock Level: - Average stock level is determined by averaging the minimum and maximum level of stock.

The formula for determination of the level is as follows:

Average level =1/2 (Minimum stock level + Maximum stock level)

This may also be expressed by minimum level + 1/2 of Re-ordering Quantity.

(e) Danger Level: - Danger level is that level below which the stock should under no circumstances be allowed to fall. Danger level is slightly below the minimum level and therefore the purchases manager should make special efforts to acquire required materials and stores.

This level can be calculated with the help of following formula:

Danger Level =Average rate of consumption x Emergency supply time.

(f) Economic Order Quantity (E.O.Q.): - One of the most important problems faced by the purchasing department is how much to order at a time. Purchasing in large quantities involve lesser purchasing cost. But cost of carrying them tends to be higher. Likewise if purchases are made in smaller quantities, holding costs are lower while purchasing costs tend to be higher.
Hence, the most economic buying quantity or the optimum quantity should be determined by the purchase department by considering the factors such as cost of ordering, holding or carrying.
This can be calculated by the following formula:
$Q = \sqrt{2AS/I}$
where Q stands for quantity per order ;
A stands for annual requirements of an item in terms of rupees;
S stands for cost of placement of an order in rupees; and
I stand for inventory carrying cost per unit per year in rupees.

2. Preparation of Inventory Budgets:

Organisations having huge material requirement normally prepare purchase budgets. The purchase budget should be prepared well in advance. The budget for production and consumable material and for capital and maintenance material should be separately prepared.
Sales budget generally provide the basis for preparation of production plans. Therefore, the first step in the preparation of a purchase budget is the establishment of sales budget.
As per the production plan, material schedule is prepared depending upon the amount and return contained in the plan. To determine the net quantities to be procured, necessary adjustments for the stock already held is to be made.
They are valued as standard rate or current market. In this way, material procurement budget is prepared. The budget so prepared should be communicated to all departments concerned so that the actual purchase commitments can be regulated as per budgets.
At periodical intervals actuals are compared with the budgeted figures and reported to management which provide a suitable basis for controlling the purchase of materials,

3. Maintaining Perpetual Inventory System:

This is another technique to exercise control over inventory. It is also known as automatic inventory system. The basic objective of this system is to make available details about the quantity and value of stock of each item at all times. Thus, this system provides a rigid control over stock of materials as physical stock can be regularly verified with the stock records kept in the stores and the cost office.

4. Establishing Proper Purchase Procedures:

A proper purchase procedure has to be established and adopted to ensure necessary inventory control. The following steps are involved.
(a) Purchase Requisition: - It is the requisition made by the various departmental heads or storekeeper for their various material requirements. The initiation of purchase begins with the receipts of a purchase requisition by the purchase department.
(b) Inviting Quotations: - The purchase department will invite quotations for supply of goods on the receipt of purchase requisition.
(c) Schedule of Quotations: -The schedule of quotations will be prepared by the purchase department on the basis of quotations received.
(d) Approving the supplier: - The schedule of quotations is put before the purchase committee who selects the supplier by considering factors like price, quality of materials, terms of payment, delivery schedule etc.
(e) Purchase Order: - It is the last step and the purchase order is prepared by the purchase department. It is a written authorisation to the supplier to supply a specified quality and quantity of material at the specified time and place mentioned at the stipulated terms.

5. Inventory Turnover Ratio:

These are calculated to minimise the inventory by the use of the following formula:
Inventory Turnover Ratio
= Cost of goods consumed/sold during the period/Average inventory held during the period
The ratio indicates how quickly the inventory is used for production. Higher the ratio, shorter will be the duration of inventory at the factory. It is the index of efficiency of material management.
The comparison of various inventory turnover ratios at different items with those of previous years may reveal the following four types of inventories:
(a) Slow moving Inventories: - These inventories have a very low turnover ratio. Management should take all possible steps to keep such inventories at the lowest levels.
(b) Dormant Inventories: - These inventories have no demand. The finance manager has to take a decision whether such inventories should be retained or scrapped based upon the current market price, conditions etc.
(c) Obsolete Inventories: - These inventories are no longer in demand due to their becoming out of demand. Such inventories should be immediately scrapped.
(d) Fast moving inventories: - These inventories are in hot demand. Proper and special care should be taken in respect of these inventories so that the manufacturing process does not suffer due to shortage of such inventories.
Perpetual inventory control system:

In a large b essential to have information about continuous availability of different types of materials and stores purchased, issued and their balance in hand. The perpetual inventory control system enables the manufacturer to know about the availability of these materials and stores without undergoing the cumbersome process of physical stock taking.
Under this method, proper information relating to receipt, issue and materials in hand is kept. The main objective of this system is to have accurate information about the stock level of every item at any time.
Perpetual inventory control system cannot-be successful unless and until it is accompanied by a system of continuous stock taking i.e., checking the total stock of the concern 3/4 times a year by picking 10/15 items daily (as against physical stock taking which takes place once a year).
The items are taken in rotation. In order to have more effective control, the process of continuous stock taking is usually undertaken by a person other than the storekeeper. This will check the functioning of storekeeper also. The items may be selected at random to have a surprise check. The success of the system of perpetual inventory control depends upon the proper implementation of the system of continuous stock taking.

6. ABC analysis:

In order to exercise effective control over materials, A.B.C. (Always Better Control) method is of immense use. Under this method materials are classified into three categories in accordance with their respective values. Group ‘A’ constitutes costly items which may be only 10 to 20% of the total items but account for about 50% of the total value of the stores.
A greater degree of control is exercised to preserve these items. Group ‘B’ consists of items which constitutes 20 to 30% of the store items and represent about 30% of the total value of stores.
A reasonable degree of care may be taken in order to control these items. In the last category i.e. group ‘Q’ about 70 to 80% of the items is covered costing about 20% of the total value. This can be referred to as residuary category. A routine type of care may be taken in the case of third category.
This method is also known as ‘stock control according to value method’, ‘selective value approach’ and ‘proportional parts value approach’.
If this method is applied with care, it ensures considerable reduction in the storage expenses and it is also greatly helpful in preserving costly items.

Selective Inventory Control-Inventory Management

Selective Inventory Control

Inventories are physical stocks of items that a manufacturing or service organization holds in stock or efficient running of activities . There are four different types of inventories :

- Raw Material Inventory
- Work In Process
- Finished /Brought Out parts
- Finished Goods

Though Inventories are necessary for efficient running of the activities of the organization but inventories cost money in terms of storage , personnel , insurance , the space that is required for their storage and most importantly the cost of capital incurred towards acquiring the stocks .
On the other hand it is also necessary to maintain sufficient inventories for avoiding the stock outs cost , cost of idle wages of labor , the cost of idle machines and also the loss of business opportunity .
The most important asset of the organization is its material(stock), if you analyze any of the balance sheets of the company we would observe that around 70% of the capital is in inventories . If this area can be managed properly the profit margin of the company can be increased. A nationwide study in this area revealed that in the manufacturing firm , on an average the company loses one percent of the profit due to non-availability of inventories in spite of high inventories investment .
Can there be a more fruitful area of cost reduction than this ????
There are several techniques of inventory control one of the techniques used for this is Selective Control of Inventories .
The method of Selective control of inventories is in accordance with Pareto’s law of Cause and Effect .
According to this law “20% of the causes are responsible for 80% of effects and vice versa “
Selective control means variation in control of items on selective basis .The criterion used for the purpose may be :

- Usage Value
- Criticality of item
- Seasonality
- Inventory investment
- Unit Price
- Procurement difficulties
- Issues form Stores

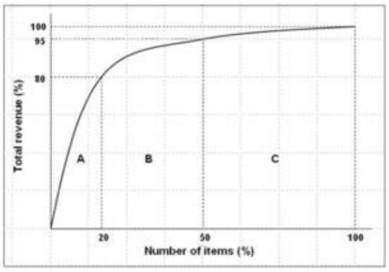
Let us now take ABC Analysis of selective inventory control for our studies . This analysis is based on the annual usage value. Figures reveal that a handful of items amount for bulk expenditure on materials .ABC Analysis segregate the inventories into three categories :
A items: These are 5-10 % of the items which amounts for 70-75% of total money spent on materials . These items need to be stocked in smaller quantities and should be procured frequently , the quantity per occasion being small .
B Items : These are 10-15 % of the items which amounts for 10-15% of total money spent on materials .
C Items :These are 70-80 % of the items which amounts for 5-10 % of total money spent on materials .

Conducting ABC Analysis :

1. Prepare a list of items and estimate their annual consumption (units).
2. Determine unit price of each item .
3. Multiply annual consumption with unit price to get the annual consumption in rupees .
4. Arrange the items in descending order of their annual usage starting with the highest and ending with the lowest .
5. Calculate cumulative usages and express the same as cumulative usage percentage .Also express the no of items into cumulative item percentage .

6. Plot a graph of cumulative usage percentage v/s cumulative item percentage and segregate into three categories as A, B and C items.
7. Decide the policies for control of these three categories .

Below is the sample graph of ABC analysis :



There are various methods of inventory control each method emphasizes on a different Aspect .For Eg:

- ABC analysis emphasizes on annual usage
- VED analysis emphasizes on Criticality of item

Methods of Inventory Control

Conventional inventory management is becoming obsolete due to rise in the global source and contract manufacturing become more dynamic with better product life cycles and, finally, through multi-channel distribution.

Introduction

Inventory is classified as idle possessions that possess economic value but still it is very essential to maintain inventory for different kind of manufacturing units, retailers, factories and enterprises. Generally, it is a vital constituent of the investment collection of any generative organization. Approximately up to 60% of the yearly production budget is used up on material and other inventories. It cannot be overstressed that better inventory management would constantly develop organizational productivity, decrease costs, and contribute to responsible use of scarce capital.

Other than raw materials, other forms of inventory include in-process, supplies, components, and finished goods inventory. The most important aim of inventory management is to decide how much resources or inputs are to be arranged and when to order so as to reduce production cost, while conforming to the essential requirements.

Due to ranging abnormality of the production inventory, no specific inventory model has general relevance to the whole variant inventory situations. As a result, a range of inventory models have appeared which address specific inventory problems.

Deterministic and Probabilistic Methods

The classic inventory model is generally used either to forecast optimum inventory or to evaluate two or more inventory systems. Two fundamental techniques are generally employed by industries to develop inventory reserve estimates and they are the deterministic and probabilistic methods. The deterministic method concedes a single best estimation of inventory reserves grounded on recognized engineering, geological, and economic information. The probabilistic method employs the known economic, geologica,l and engineering data to produce a collection of approximate stock reserve quantities and their related probabilities. Each inventory reserve categorization gives a signal of the prospect of revival.

The advantage of a probabilistic approach lies in the fact that by using values lying within a bandwidth and modeled by a defined distribution density, the reality can be modeled better than by using deterministic figures.

Deterministic models of inventory control are used to determine the optimal inventory of a single item when demand is mostly largely obscure. Under this model inventory is built up at a constant rate to meet a determined, or accepted, demand. For instance a contract is received in January for 100 model trains and the delivery to be completed by November/holiday shopping. Since the deadline is 10 months so the trains can be produced at a rate of ten per month.

Also stochastic one-item models can be used for inventory control. Such models are used when demand is not known. Stochastic models are more realistic, and thus more relevant, since they regard the cost of shortfalls, the cost of arranging and the cost of stacking away, and attempt to formulate an optimal inventory plan.

What is Deterministic and Probabilistic inventory control?

To value it better, let us imagine deterministic and probabilistic conditions.

A deterministic circumstance is one in which the system parameters can be ascertained precisely. This is also known as a situation of sureness since it is realized that whatever are ascertained, things are sure to occur the same way. Also the information about the system under thought should be whole so that the parameters can be determined with confidence. But this kind of system rarely exists, and it is for sure that some uncertainty is always associated with the system.

Deterministic optimization models presume the state of affairs to be deterministic and consequently render the numerical model to optimize on system arguments. Since it conceives the system to be deterministic, it automatically means that one has full information about the system.

Probabilistic situation is also known as a situation of uncertainty. Although this is present everywhere, the vagueness always makes us comfortless. So people keep attempting to lessen uncertainty.

Probabilistic inventory prototypes consisting of probabilistic demand and supply are more suitable in many real circumstances. But, such models also create larger trouble in analysis and often become uncontrollable.

Conclusion

Thus we can conclude by stating that the best inventory plan, in most cases, will be to minimize the cost of holding stock of raw-materials or finished products. Whether to choose deterministic or probabilistic models of inventory control will depend on the type of the industry.