UNIT-II

CONTROL ON PURCHASED PRODUCT

UNIT-2 (Control on Purchased Product)
Procurement of various products – Evaluation of Suppliers –Capacity Verification –Development of sources –Procurement Procedure

PROCUREMENT OF VARIOUS PRODUCTS:

An organization needs to purchase a variety of raw materials and products for further processing or consumption. The quality of product is important and given due consideration at the time of purchase because it can affect the quality of the end product. While deciding the quantity that is to be purchased, consideration is also given to the economy. Many times, it is more economical to get some of the components as per their own design manufactured by ancillary companies.

The act of obtaining or buying goods and services. The process includes preparation and processing of a demand as well as the end receipt and approval of payment. It often involves:

(1) Purchase planning,
(2) Standards determination,
(3) Specifications development,
(4) Supplier research and selection,
(5) Value analysis,
(6) Financing,
(7) Price negotiation,
(8) Making the purchase,
(9) Supply contract administration,
(10) Inventory control and stores, and
(11) Disposals and other related functions.
The process of procurement is often part of a company's strategy because the ability to purchase certain materials will determine if operations will continue.

Procurement Process

♣ Procurement process is known as purchasing through the purchasing department.

♣ It starts with a requisition from an employee and ends with the payment of supplier.

EVALUATION OF SUPPLIERS:

♣ It is the process of evaluating and approving potential suppliers by factual and measureable assessment.

♣ It ensures a portfolio of best-in class suppliers is available for use.

♣ It is a process to measure and monitor the performance of suppliers for reducing cost, reducing risk and for continuous improvement.

Evaluation Process:

It is the pre-qualification step within the purchasing process on the basis of which a supplier is approved or not approved. It is also known as Supplier Performance Management. This includes approval of various aspects of the supplier business including:

♣ Capacity

♣ Financials

♣ Organization Structure, and

♣ Performance Benefits

♣ Suppliers provide high standard of products and services

♣ Suppliers offer sufficient capacity and business stability

♣ Identification and removal of hidden cost in supply chain Drawbacks

♣ Include resources and cost commitments in establishing and maintaining an effective system

♣ Without going through the root cause of supplier's problem or inconsistent scoring may result in inaccurate assessment.

CAPACITY VERIFICATION:

For capacity verification, following points need to be verified: General Requirement

1. Whether the organization has established, documented, implemented, maintained and continually improves a quality management system (QMS) in accordance with the requirements of ISO 9000-2000?

2. Whether the organization has identified the processes needed for the quality management system, determined the sequence and interaction of these processes, criteria and methods required to ensure the effective operation and control of these processes, ensure the availability of information necessary to support the operation and monitoring of these processes, measures, monitors and analyses these processes and implements action necessary to achieve planned results and continual improvement.

Management Responsibilities:

1. Management Commitment: Whether the top management is committed to the development of the quality management system.

2. Customer Focus: Whether the top management ensures that customer needs and expectations are determined considering obligations related to product including regulatory and legal requirements, converted into requirements and fulfilled with the aim of achieving customer satisfaction.

3. Quality Policy: Has the top management defined its Quality policy? Is it appropriate to the purpose of the organization, committed to meeting requirements of customers and to continual improvement, provides a framework for establishing and reviewing quality objectives, communicated and understood at appropriate levels in the organization, reviewed for continuing suitability and controlled?

4. Provision of Resources: Has the organization determined and provided in a timely manner the resources needed to implement and improve the processes of the quality management system and to address customer satisfaction?

5. Assignment of Personnel: Whether the Personnel assigned responsibilities defined in the quality management system are competent on the basis of applicable education, training, skills and experience.

6. Training, Awareness and Competency: Whether the organization has established a system for identifying competency needs of personnel and provides training, Evaluate the effectiveness of the training provided, and maintains appropriate records of education, experience, training and qualifications of its personnel?

7. Facilities: Has the organization identified, provided and maintained facilities such as Workspace, Equipment, hardware and software and supporting services it needed to achieve the conformity of product?

8. Work Environment: Whether the organization has a system for identification and management of human and physical factors of the work environment needed to achieve conformity of product.

9. Planning of Realization Processes: Whether the organization has determined Quality objectives for the product, project or contract, processes and documentation, resources and facilities specific to the product verification and validation activities, the criteria for

acceptability, and records that are necessary to provide confidence of conformity in the process planning for product realization.

DEVELOPMENT OF SOURCES

♣ The main thing is to ensure that the potential suppliers who show interest in the product, has the minimum essential plant equipment and skilled manpower.

♣ Quality engineers can set up necessary controls to ensure the quality of product to be maintained at acceptable level.

♣ Condition of supply should be put down in writing that clearly explains the vendor the submission of preproduction sample or a particular type of packaging etc.

♣ The following details should be considered:

Any national or international standard specification should be clearly mentioned of Materials to be approved by the purchaser before taken into use o Size of the sample, made of dispatch and test to be conducted on the sample should be known to the vendor o Deviations from drawing and specifications or concessions on certain quality requirements should be clearly defined of Method of acceptance should be clarified to the vendors o Product nomenclature, part number and other details should be specified o Warranty clauses and procedure for claims should be clarified in details

PROCUREMENT PROCEDURE:

Procurement is a structured procedure designed to consult the market for the purchase of these goods and services. A procurement procedure leads to the conclusion of a public contract.

The purpose of a procurement procedure is threefold:

- To guarantee the widest possible participation of economic operators;
- To ensure the transparency of operations; and
- To obtain the desired quality of services, supplies and works at the best possible price.

Offers submitted in the context of a procurement procedure are called “tenders”. An economic operator who has submitted a tender is referred to as a “tenderer”.

Step 1: Need Recognition – This is a seemingly obvious step, but one that needs to be mentioned. A business owner (or procurement department) must recognize a product is needed in order to purchase it. That product can be either a brand new item, or one that is being re-ordered.

Step 2: Specific Need – Does your industry have specific requirements for various products. If that is the case in your industry, be sure you are up-to-date on those requirements and order accordingly.

Step 3: Source/Examine Supplier Options – Every business needs to determine where to get their goods. Some companies have an approved vendor's list (this is a recommended practice) while others are still trying to determine who the best suppliers are. Once a supplier is chosen, companies should stick with that relationship and try to establish preferred pricing.

Step 4: Price and Terms – Once a supplier is chosen, companies should stick with that relationship and try to establish preferred pricing and specific terms (i.e. delivery).

Step 5: Purchase Order – The purchase order is used the formal contract used to buy the product. The purchase order outlines the price, specifications and terms and conditions of the product or service and any other additional obligations.

Step 6: Delivery – The transfer of the purchase order via email, mail or fax (email is highly recommended).

Step 7: Expediting – This stage addresses the timeliness of the service or materials delivered. Delays, for many businesses, are important. The purchase order will have expected delivery date information.

Step 8: Receipt and inspection – Once delivered, the receiving company inspect and, subsequently, accepts or rejects the product. Rejection is almost always due to a damaged product.

Step 9: Invoice Approval and Payment – At this stage, three documents must match when the seller wants payment – the invoice, the receiving document (attached to the product) and the original purchase order. This is known as three-way matching. If there is a discrepancy, it must be resolved before payment is made.

Step 10: Record Keeping – The receiving (buying) company must keep good records. This means saving all relevant documents for every completed purchase.

UNIT-2 (Manufacturing Quality)

Methods and Techniques for Manufacture–Inspection and Control of Product –Quality in Sales and Services –Guarantee–Analysis of Claims

MANUFACTURING:

Manufacturing involves making products from raw material by various processes or operations. It is a complex activity, involving people having broad range of disciplines and skills and a wide variety of machinery, equipment's etc.

Considerations in Manufacturing

i) Design must fully meet requirements and specifications of the product

ii) Manufacturing must be by the most economical methods in order to minimize cost

iii) Quality must be built into the product at each stage from design to assembly

iv) Production methods must be flexible to changing demands, types of product, production rates, and production quantities and on- time delivery to customer

v) Strive for higher productivity by optimum use of the resources (material, machine, energy, capital, labor and technology)

Manufacturing steps

1. Pre-production Activity:

- Selection of supplier
- Develop pilot-run plan
- Develop manufacturing strategy

2. Pilot run a validate manufacturing process against:

- Objectives in product specification
- Cost
- Quality
- Documentation
- Tooling
- Training
- Process control
- Supplier plan and contract ix. Internal failure analysis

3. Production run:

- Produce high quality product on time
- Continue to tune the process
- First order manufacture
- Verification of product cost

4. Delivery to customer

- Deliver first production unit to the customer
- Refine manufacturing process based on:

✓ First built
✓ Monitor field unit performance

METHODS OF MANUFACTURING

There is a variation in the production system as per the need of the product. Generally, production volume is the most important issue. There are three methods of the manufacturing:

1. Job Shop Production,

2. Batch Production, and

3. Mass Production.

Characteristics of Job Shop Production

- To meet a particular customer's needs
- Lot size is small
- Variety is high
- Equipment's used are general purpose and flexible to meet specific customer needs
- Labour should be highly skilled
  - ✓ **Example:** Grinding, Gear manufacturing, Fabrication etc.

Characteristics of Batch Production

- For repeated customer orders
- Lot size is medium and in batches
- For moderate variety
- Machines and equipments are general purpose
- Labour should be high skilled

✓ **Example:** Bakery items, Sports shoes, T-shirts etc.

Characteristics of Mass Production

- For high demand items
- Lot size is very large
- Variety may be one of its kind
- Special machines, tools and equipments are used
- Labour skill level is moderate
- Entire plant is designed to cater a few special varieties of products

✓ **Example:** oil refinery, chemical processing unit etc.

TECHNIQUES OFMANUFACTURING

1. Just-in-Time (JIT) Manufacturers

- ✓ To keep the process moving and schedule supplies to arrive at the factory just-in-time for them to be used in production

2. Kanban

- ✓ An automatic request for new supplies to the suppliers when supplies are running short

3. Just-in-Sequence (JIS)

- ✓ Supplies arrive at the factory at the exact moment they are needed within the manufacturing sequence

4. Total Productivity Maintenance (TPM)

- ✓ To repair minor issues with the machines to avoid stopping production

5. Quick Response Manufacturing (QRM)

- ✓ To short the time period elapsed between customer's request for a product and its delivery

6. Cellular Manufacturing

- ✓ Factory floor is divided into different sections or cells
- ✓ Machines are placed in the order that facilitate the material flow to the completion of the product

7. Single-minute Exchange of Die (SMED)

- ✓ Reduce waste time when there is some change in the process from old product to new product

8. DMADV Methodology

- ✓ Design, Measure, Analyze, Design and Verify methodology based on the analysis of customer demand
- ✓ Manufacturers plan ahead and try to design ways to avoid defects in the first place

9. SIPOC Methodology

- ✓ Suppliers, Inputs, Process, Outputs, Customers methodology to allow manufacturers to trace the life cycle of the products from supplier to customer and identify problem areas

10. Accelerate production

- ✓ Computer-aided-Design (CAD)
- ✓ Computer-aided Manufacturing (CAM)
- ✓ Computer-controlled Machines (CCM)
- ✓ Computer-integrated Manufacturing (CIM)

Steps for Quality Manufacturing

1. Actual Process

- Name of the process
- Starting and ending points
- Inputs and outputs
- Customers and suppliers

2. Areas of Improvements

- Durability
- Material
- Toxicity
- Disintegration of parts

3. Solution for the problems

- Brainstorming
- Consultation through specialists
- Feedback from those who work on the process regularly

4. Detailed Solution

- The personnel necessary for making improvements
- Project cost analysis
- Time frame for completing the overall improvements
- How the improvement will affect rest of the plant

5. Put Plan into Action

- Involve everyone who utilize the process in implementing the action plan

6. Evaluate

- The process should have desired effect
- The problem is fixed
- Waste eliminated
- Improvement within budget and time frame

INSPECTION AND CONTROL OF PRODUCT

Product Quality Inspections will help to protect the brand and the company's reputation by minimizing defective merchandise, customer complaints, non- compliant products, and late shipments. Quality Inspections can help manufacturers:

♣Ensure product safety prior to shipping

♣Minimize the amount of defective merchandise

♣Reduce customer complaints due to inferior products

♣Detect merchandise containing non- standard or non-compliant components

♣Eliminate late shipments Based on your specific needs throughout the manufacturing process, there are a wide variety of quality inspection services.

Pre-Production Inspections

- ✓ Inspection of raw materials and components before production begins.
- ✓ After product samples are provided, verify that the factory has ordered the correct materials, components, and accessories.
- ✓ Also randomly select and inspect a sample of partially produced products for potential defects, then report findings.
- ✓ The technical advice necessary to improve product quality and to minimize the chance of defects during production.

Production Inspections

- ✓ They are ideal for: o Shipments of substantial quantities, Product lines with continuous production, strict requirements for on-time shipments and as a follow-up if poor results were found during Pre- Production Inspection. Normally, it is carried out when 10-15% of the merchandise is completed.

At this point deviations are identified

♣ If any, take advice on corrective measures that will ensure uniformity of product and quality.

♣Re-check any defects discovered during Pre-Production Inspection and confirm that they have been rectified. Final Random Inspections

♣It can begin only after production has been completed and all merchandise is ready and packed for shipment.

♣Through a statistical method set by industry standards, sample products to verify product safety, quantity, workmanship, function, colour, size, packing, and more.

♣This ensures that the product is consistent and compliant with all country, industry, or otherwise-specified requirements and that no critical major or minor defects appear.

Loading Supervision

♣Closely monitor the loading process

♣Verify product quantity

♣Ensure proper handling of the cargo.

♣Seal the containers tape as proof of compliance.

♣This significantly reduces the risk associated with importing cargo.

QUALITY IN SALES AND SERVICES

- Customer's relationship with the company may have begun with the sale, but it's the service experience that really cements the deal.
- Customers begin to see value in the product only after they have tasted the entire pie of service.
- An efficiently managed and utilized team of after sales field technicians can positively impact the.
- They have the potential to systematically nurture customer loyalty, since service quality has a direct relationship with customer intent to repurchase.
- Successful cross sell and up sell of related products is also easier if existing customers are satisfied with the support they have received.
- Team of after sales field technicians have the potential to directly contribute to organization's revenue stream.

Methods for establishing a quality reputation:

Only that product should be sold which fully meet the customer's requirement of Adjustments of warranty claims o Effective after sales service.

GUARANTEE

- ✓ A promise or assurance, especially in writing, that something is of specified quality, content, benefit, etc., or that it will perform satisfactorily for a given length of time.
- ✓ An undertaking by the selling company that it will replace the product free of cost or refund the money if the defect is due to improper material or faulty manufacture.
- ✓ It convinces the customer about the quality of the product.
- ✓ It is a powerful sales tool.

- ✓ Following information included in guarantee card: o Validity period of Manufacturer's liability o Claim procedure o Invalidation conditions

ANALYSIS OF CLAIMS

- Claims analysis is a technique for examining the positive and negative consequences of design features that are described in current or future scenarios of use.
- A "claim" is a statement of the consequences of a specific design feature or artefact on users and other stakeholders.
- Investigation of claims involves thorough technical knowledge of the product.
- Guarantee claims may be investigated by quality control department.
- The minor claims can be settled by regional service centers and the major ones may be referred to the company.
- Procedure for claim should be simple.