Principles of Purchasing

Lecture 4

Quality Management in Purchasing

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Lecture Learning outcomes

At the end of the lecture, you will be able to:

1. Explain the conceptual framework of quality in purchasing
2. Understand the quality management dimensions in purchasing
3. Describe the implementation of total quality management in purchasing

Introduction to concepts in quality management:

Quality is the totality of features and characteristics of a product that bears on the ability to satisfy stated or implied needs.

In this definition, features and characteristic of product ' implies the ability to identify what quality aspects can be measured, or controlled, or constitute an acceptable quality level (AQL) and ability to satisfy given needs relates to the value of the product or service to the customer including economic value as well as safety, reliability, maintainability and other relevant features.

Five approaches of quality:

1) The transcendent approach: quality is absolute and universally recognisable.
2) The product-based approach: quality is precise and measurable variable.
3) The use-based approach: quality is defined in terms of fitness for use or how well the product fulfils its intended functions
4) The manufacturing-based approach: quality is conformance to specifications i.e. targets and tolerances determined by product designers.
5) The value-based approach: quality is defined in terms of cost and prices. Here, a quality product is one that provides performance at an acceptable price or conformance at an acceptable cost.

Eight dimensions of quality:

1) Performance: The product's operating characteristics
2) Reliability: The probability of a product surviving over a specified period of time under stated conditions of use.
3) Serviceability: the speed, accessibility and ease of repairing the item or having it repaired.
4) Conformance: The degree to which delivered products meet the pre-determined standards.
5) Durability: Measures the projected use available from the product over its intended operating cycle before it deteriorates.
6) Features: 'The secondary characteristics which supplement the product the product's basic functioning.
7) Aesthetics: personal judgements of how a product looks, feels, sounds, tastes or smells.
8) Perceived quality: Closely identified with the reputation of the producer. Like aesthetic, it is a personal evaluation.

Quality control and quality management-ISO 9000, 2000, TQM:

Quality control: Is concerned with defect detection and correction. Inspection activities can be classified as quality control processes, along with other activities which involve monitoring to ensure that defectives or potential defectives are spotted.

Quality control can also be defined as a process employed to ensure certain level of quality or service. It may include whatever actions a business deems necessary to provide for the control and verification of certain characteristics of a product or service. The basic goal of quality control is to ensure that the products, service or processes provided meet specific requirements and are dependable, satisfactory and fiscally sound.

Quality assurance: Differs from quality control and is defined as all those planned and systematic activities implemented within the quality system and demonstrated as needed to provide adequate confidence that an entity will fulfil requirements for quality.

Quality assurance can also be defined as a planned and systematic production processes that provide confidence in a product's suitability for its intended purpose. It can also be defined as a set of activities intended to ensure that products and services satisfy customer's requirements in a systematic and reliable fashion.

Two key principles characteristics of quality assurance entail:' fit for purpose'' (the product should be suitable for the intended purpose) and ''right first time'' (mistakes should be eliminated).

Quality assurance include regulation of the quality of raw materials, assemblies, products, components, services related to production, management production and inspection processes.

Quality assurance is concerned with defect prevention and has become synonymous with quality systems such as Kenya bureau of standards (KEBS), BS5750 and international counterpart ISO 9000.

Quality assurance includes all activities connected with the attainment of quality such as:

a) Design, including proving and testing
b) Specification, which must be clear and unambiguous
c) Assessment of supplier to ensure that they can perform
d) Motivation of all concerned parties
e) Education and training of supplier's staff
f) Inspection and testing
g) Feedback to ensure that all measures are effective

Quality control/Assurance objectives:

a) Reduction of errors and enhancement of quality
b) Problem prevention rather than detection and correction
c) Reduction in product or service costs
d) Improved productivity
e) Improved employee involvement, motivation, job satisfaction and commitment
f) Improved teamwork and working relationships
g) Development of employee problem-solving ability.

Advantages of quality control and assurance to both buying and supplying organisation:

Both buyers and sellers gain benefits from a good quality control. The following are the principle advantages:

a) Minimum possible rejection and wider acceptance of the supply is made possible by the supplier's effective quality control system.
b) Minimum inspection time and effort help the vendor as well as the purchase in delivery and receiving the supply at a lower cost

c) Prospect of zero defects increase
d) Scraps are minimised and wastage is reduced due to good quality control system
e) Goodwill of both vendor and purchaser is enhanced as there are fewer difficult and problems in regard to quality products
f) Sometimes inspection at the purchaser's end is eliminated if vendor quality certificate and statistical date regarding the quality of the goods supplied is enclosed.
g) Quality consciousness is developed resulting in benefit to all concerned.
h) Accumulation of obsolete material is reduced to the minimum
i) It results in reduction of lock-up capital due to decrease in inventory.

Total quality management (TQM)

This is the overall management philosophy. TQM is defined as a way of managing an organisation so that every job, every process is carried out right, first time and every time.

This mean each stage of process is carried out right, first time and every time. This also means that each stage of manufacture or service is 100% correct before it proceeds.

TQM is also defined as an integrative management concept of continually improving the quality of delivered goods and services through the participation of all levels and functions of the organisation.

TQM principles:

TQM is based on three important tenets:

1) A focus on product improvement from the customer's view point. The term customer here is associated with concept of quality chains which emphasizes the linkages of suppliers and customers.

   Quality chains are both internal and external. Internally, purchasing is the customer of design and the supplier of production. Staffs within a function are also suppliers and customers.
2) A recognition that personal at all levels share responsibility for product quality. It is based on team rather than individual performance. Thus, while top management provides leadership, continuous improvement is also understood and implemented at shop floor level (based on Japanese concept of Kaizen-on- going improvement which affects everyone). The characteristic s of this principle include:

- Provision of leadership from the top
- Creation of quality culture dedicated to continuous improvement
- Team-work- i.e. quality improvement teams and quality cycles
- Adequate resource allocation
- Quality training of employees
- Measurement and use of statistical concepts
- Quality feedback
- Employee recognition

It has been stated that ‘’once a culture of common beliefs, principles, objectives and concerns has been established, people will manage their own tasks and will take voluntary responsibility to improve processes they own’’.

3) Recognition of the importance of implementing a system to provide information to managers about quality processes which enable them to plan, control and evaluate performance.

Issues in managing quality in purchasing and supply chain

Specification and standardization, variety reduction, managing service quality, value analysis and engineering, failure model effect analysis (FMEA)

- **Specification and standardization:**

Specification: A specification for an item has been defined as ‘a statement of the attributes of a product or service. It is basically a description of an item, its dimensions, analysis, performance or other relevant characteristics in sufficient detail to ensure that it will be suitable in all aspects for the purpose for which it is intended.

There are two main approaches to specification that are performance and conformance.

1) The idea of **performance specification** is that a clear indication of the purpose, function, application and performance expected of the supplied material or service is communicated and the supplier is allowed or encouraged to provide an appropriate product. In this case, the detailed specifications is in the hands of the supplier where applicable, performance specifications are to be preferred in that they allow a wider competition and enable suppliers to suggest new or improved ways of meeting the requirements.

2) **Conformance specifications** apply in situations where the buying organisation lays down clear and unambiguous requirements that must be met (In this case the specification is of the product, not the application). This type of specification is necessary where for example items for incorporation in an assembly are required or where a certain chemical product is to be acquired for a production process. It has been said that specifications restrict innovation.

Additional methods of specification:

- Use of brand or trade name: This will be applicable under the following circumstances:
  - When manufacturing process is secrete or covered by a patent
  - When manufacturing process of the vendor call a high degree of skill that cannot be exactly defined in a specification
  - When only small quantities are bought so that the preparation of the specifications by the buyer is impracticable
- By sample: The sample can be provided either by buyer or seller and is useful method of specification in relation to printing and some raw materials e.g. cloth. When sample specifications are used:
  - The bulk must correspond with the sample in quality
  - The buyer must have a reasonable opportunity of comparing the bulky with the sample
  - The goods must be free from any defect making their quality unsatisfactory which a reasonable examination of the sample would not reveal.
  - a) Performance specifications - instead of describing an item by its design, performance specification is used. Performance specification describes in words and quantitatively what the item is required to do.
    - Function and fit specification: with this approach the function and the way the item is going to fit in the whole system is described. This is common in the computer and automobile industry where earlier supplier involvement (ESI) is essential.
    - Markets grades - grading is a method of determining quality of commodities. A grade is determined by comparing a commodity standard previously agreed. Grading is restricted to natural commodities, e.g., hides, cotton, tobacco etc. The grades are developed by commodity exchanges, trade associations, government agencies etc. The inspection of grades is expensive in terms of time, effort and money.
    - Qualified products- where it is necessary to determine in advance of purchase whether a product can meet specification then it is crucial to qualify products.

This exists in cases where:

✓ it takes too long to conduct post-purchase inspection;

✓ testing equipment is not commonly or immediately available; and

✓ purchase concerns safety equipment, life support equipment, research equipment etc.

✓ After qualification products of approved suppliers can be put in a qualified product list. It is often referred to as prequalification of suppliers.

- Combination of methods- many products cannot be adequately described by a single method as such many or a combination of methods may be used.
- Descriptive - These describe the physical features of a requirement. Such description may include measurements such as height, breadth and length or quantified in weights such as kilograms or volume as litre. Usually, descriptive specifications give a mental picture and sometimes include colour.

The value of specifications:

Specification will ensure that:

- All commodities specified will be suitable for their intended purpose when put in place
- Materials is of a consistent quality at all times
- The inspection or testing to be applied to goods purchased is notified in advance to the inspection section and to suppliers
- In respect of the purchase of the specified items, all suppliers will have the same date on which to base the quotations

Preparation of specifications:

- Avoid over-specification: This may lead to goods becoming more expensive and also may be difficult to find a manufacturer willing to quote
- Avoid under-specification since this may lead to inferior goods and services
- In order to be practicable, pay attention to convenience in handling and storage

- If there is to be inspection after delivery, the specifications ought to state what tests are to be applied
- If any special marking or packing is wanted, include the relevant instructions in the specifications.

Standardization:

This is the process of agreeing and adopting generic specification or descriptions of the items required. Standardization can also be defined as the process of grouping like items together in order to simplify examination of the complete range of any given type of items within the store. A standard differs from specification in that while every standard is a specification not every specification is a standard. Standard may be distinguished according to their subject –matter, purpose and range of application.

Advantages of standardization:

- There is accurate comparison of quotation since all prospective suppliers are quoting for the same thing.
- Clear specification helps to achieve reliability and reduce costs
- Less dependability on specialist suppliers and greater scope for negotiation
- Facilitation of international sourcing by reference to ISO standards.
- Reduction in error and conflicts thus increasing supplier goodwill.
- Quality is easier to monitor because visual inspection is easier and use of tried or tested items means that defects are less likely to occur.
- It gives clear specification and removal of any uncertainty as to what is required on part of both buyer and the supplier.
- Save time and money by eliminating the need to prepare specifications each time and reducing the need for explanatory telephone calls.
- Easier communication and less room for misunderstanding and disputes between buyers and users.
- Save inventory and cost through variety reduction.

After standardization is introduced the following attributes should be observed:

- ✓ Ensure specifications are observed
- ✓ Ensure new specifications are suitably revised and approved.
- ✓ Ensure old specifications are reviewed, replaced, amended or even eliminated if they are not necessary.

Variety reduction:

This is the process of reducing the number of varieties stocked to a controlled workable minimum.

Procedure for variety reduction:

Variety reduction involves a complete examination of the list of commodities stocked to determine:

- ➢ The use or users for which each item is intended
- ➢ Which items have similar characteristics and can be used as substitutes for each other
- ➢ What range of sizes is essential
- ➢ Which items can be eliminated
- ➢ What specifications are necessary for retained items

Reasons that lead to variety reduction:

- Lack of specification when procuring items
- Where there are many suppliers of the same item
- Different sizes of containers or packages for items
- Lack of guidelines on how to use stocked items
- When there are varieties of the same item

Advantages of variety reduction

- Reduction of stock holding cost
- Release of money tied up in stocks

- Easier specification while ordering
- Narrow range of inventory which leads to reduction in administrative cost
- Reduced supplier base: facilitates the building of long term relationship and supplier development.

Managing service quality:

Service quality is about ensuring customers, both internal and external, get what they want. As the technology brings markets, people and products ever closer, it is the single most effective and sustainable means of differentiation between competing companies. In order to embrace proper management based on service quality aspects the following concepts should invariably be focussed on:

- Voice of the customer
- Customer focus
- Customer alignment
- Linking the customer to results

Conclusion

In conclusion, understanding the concepts of quality management is essential for any organization aiming to meet customer needs and improve overall performance. Quality is not just about meeting specifications; it encompasses a range of features and characteristics that contribute to customer satisfaction. The various approaches to quality—transcendent, product-based, use-based, manufacturing-based, and value-based—offer distinct perspectives on how to evaluate and enhance quality.

Additionally, the eight dimensions of quality provide a comprehensive framework for assessing products and services. By implementing effective quality control and assurance practices, organizations can minimize defects and foster a culture of continuous improvement through Total Quality Management (TQM). Ultimately, a commitment to quality management enhances not only operational efficiency but also customer loyalty and organizational success.

Revision questions

1. How is quality defined in the context of quality management, and what are the implications of features and characteristics of a product in satisfying customer needs?

2. List and describe the five approaches to quality management. How does each approach contribute to a product's perceived value?
3. Identify and explain the eight dimensions of quality. How can these dimensions be used to assess a product's overall quality?
4. What are the key differences between quality control and quality assurance? Provide examples of activities associated with each.
5. What are the main principles of Total Quality Management? How do these principles promote a culture of continuous improvement within an organization?