Chapter 8

Quality Management in The Enterprise

Learning objectives

- The concept of products, product quality, and quality management system in an enterprise.
- The history of the development of quality management concepts.
- Quality assurance and quality assurance systems.
- Quality management tools.

1. The concept of product, product quality, and quality management system in an enterprise

The concept of product

- A product concept, also known as an idea declaration, is a description or vision of a product or service, that is typically created at the beginning of the product lifecycle.
- Product concepts are developed long before any design or engineering work begins; they consider market analysis, customer experience, product features, product-market fit, cost, and other factors to help bring the concepts to life.
- The final component of the product concept is the product idea statement. It outlines the product's strategy, vision, and purpose and assists clients and the organization.

What information does a product concept statement include?

- Product concept declarations usually involve the following elements.
  - ❖ The product or service name.
  - ❖ Target users or segments.
  - ❖ How will target users use the product or service?
  - ❖ What problems or pain points does the product or service solve?
  - ❖ The business goals the product or service supports.
  - ❖ The concept’s unique selling points.
  - ❖ The overall vision and strategy for the user experience.

What makes a product concept crucial?

- In advance of any work being done, product concepts are an excellent way to gain support from key stakeholders.
- Product concepts should be shared as soon as possible because they serve as a starting point for dialogue and ongoing development.
- Product concepts are also used as a check-in tool. Teams can check if they're still on track and produce something that meets the document's requirements.

Types of products

- ***Convenience products***
  - ❖ Customers benefit from convenience products as they save time and effort. Convenience products are items that customers buy frequently, quickly, and with little effort, such as soap, toilet paper, batteries, and so on.
- ***Specialized products***
  - ❖ These are goods that customers actively look for to buy due to distinctive features or brand loyalty. Usually, these customers won't settle for imitation goods like designer clothes, expensive cars, or well-known paintings.
- ***Brand products***
  - ❖ The idea behind branded goods is straightforward: the more favorable a brand is associated with, the more probable it is that a customer will purchase something from it.

Product Quality: What is it?

- As marketers, our job is to create products that satisfy the demands of customers. The quality of products is a crucial feature, regardless of whether they are goods, services, or a combination of both.
- The degree to which a good service, or combination of them, resolves an issue or satisfies a requirement is the measure of product quality.
- A product needs to be of a certain quality, ideally of good quality, to have any true value. Put another way, it must satisfy a need or solve a problem for the user.

What are the quality dimensions?

- Performance: primary product characteristics.
- Features: secondary characteristics and added features.
- Conformance: Meeting specifications or industry standards, workmanship.
- Reliability: consistency of performance over time and average time.

What are the quality dimensions? (Cont.)

- Durability: useful life of products.
- Service: resolution of problems and complaints, ease of repair.
- Response: Human-to-human interface.
- Aesthetics: sensory characteristics.
- Reputation: past performance and other intangibles.

How does quality planning work? What are the steps?

- The following are the important steps for quality planning:
  - ❖ Establishing quality goals.
  - ❖ Identifying customers.
  - ❖ Discovering customer needs.
  - ❖ Developing product features.
  - ❖ Developing process features.
  - ❖ Establishing process controls and transferring to operations.

A Quality Management System (QMS): What is it?

- A formalized system that records duties, processes, and procedures for accomplishing quality policies and objectives is known as a quality management system, or QMS.
- To comply with legal requirements and continuously increase an organization's efficiency, a QMS assists in organizing and directing its operations.

The benefits of quality management systems

- The implementation of a quality management system has an impact on all aspects of an organization's performance.
- A documented quality management system provides the following benefits:
  - ❖ Performing the customer demand encourages trust in the company, which attracts more clients and increases revenue.
  - ❖ Performing an organization's requirements, which guarantees compliance with laws and regulations and the delivery of goods and services in the most economical and resource-efficient way, creates an environment for development, growth, and profit.

The benefits of quality management systems (Cont.)

- These benefits offer additional advantages, including:
  - ❖ Defining, improving, and controlling processes.
  - ❖ Reducing waste.
  - ❖ Preventing mistakes.
  - ❖ Lowering costs.
  - ❖ Facilitating and identifying training opportunities.
  - ❖ Engaging staff.
  - ❖ Setting organization-wide direction.
  - ❖ Communicating a readiness to produce consistent results.

Other QMS standards and ISO 9001:2015

- The most widely used and accepted quality management system standard in the world is ISO 9001:2015.
  - ❖ Enterprises can use the requirements for a QMS specified in ISO 9001:2015 to design their programs.
- Additional standards associated with quality management systems are as follows:
  - ❖ ISO 9000 series (including ISO 9000 and ISO 9004).
  - ❖ ISO 19011 (auditing management systems) and ISO 13485 (quality management systems for medical devices).
  - ❖ ISO 14000 series (environmental management systems) and IATF 16949 (quality management systems for automotive-related products); etc.

A QMS's Components and Requirements

- Each component of a system for quality management contributes to the general objective of meeting the needs of clients and the organization.
- Quality management systems ought to handle an organization's unique requirements; however, the following elements are shared by all systems:

❖ The organization's quality policy and quality objectives.

❖ Quality manual.

❖ Procedures, instructions, and records.

❖ Data management.

❖ Internal processes.

❖ Customer satisfaction from product quality.

❖ Improvement opportunities.

❖ Quality analysis.

Quality Management System Principles

Source: https://www.iso.org/files/live/sites/isoorg/files/store/en/PUB100080.pdf

Building and Carrying out A Quality Management System

- To help guarantee customer satisfaction, your company must identify and manage many interconnected, multi-functional processes before implementing a QMS.
- The diverse goals, requirements, and goods and services offered by the company should be taken into consideration when designing the QMS.
- This framework, which is primarily based on the plan-do-check-act (PDCA) cycle, enables ongoing enhancements for both the QMS and the product.

Building and Carrying out A Quality Management System (Cont.)

- To put a quality management system into place, follow these basic steps.

❖ ***Design and build***

➢ The design and build phases aid in creating a QMS's framework, procedures, and implementation strategies.

❖ ***Deploy***

➢ By segmenting each process into smaller steps and providing staff with training tools, documentation, education, and metrics, it is optimal to deploy in detail.

Building and Carrying out A Quality Management System (Cont.)

- To put a quality management system into place, follow these basic steps.

❖ ***Control and Measure***

➢ Two key components of creating a QMS are control and measurement, which are primarily achieved by regular, systematic audits of the QMS.

❖ ***Review and Improve***

➢ Examine and improve the process for handling audit results in great detail. The objectives are to assess each process's efficiency and effectiveness concerning its goals, share the results with the staff, and create new procedures and best practices based on the information gathered throughout the audit.

2. The history of the development of quality management concepts

History of Quality

Source: https://asq.org/quality-resources/history-of-quality

Europe's Medieval Guilds: Quality

- The origins of the quality movement can be found in medieval Europe. In the late 13th century, artisans started banding together to form guilds.
- These guilds were in charge of creating stringent guidelines for the caliber of goods and services.
- Inspection committees used unique marks or symbols to identify perfect goods and enforce the rules.

Industrial Revolution: Quality

- ***Craftsmanship***
  - ❖ American manufacturing tended to adopt the European craftsmanship model in the early 19th century. The majority of craftsmen sold their products locally to satisfy their clients.
- ***The Factory System***
  - ❖ The Industrial Revolution in Europe provided development to the factory system, which started to separate the craftsmen's trades into specialized jobs. As a result, the required employment of shop owners as production supervisors and craftsmen as factory workers also indicated the beginning of the end of employees' feelings of autonomy and empowerment at work.
- ***The Taylor System***
  - ❖ *Frederick W. Taylor's new management style*, which aimed to boost output without hiring more skilled craftspeople, was introduced by the United States in the late 19th century.

World War II: Quality

- To redirect the civilian economy toward military manufacturing, the United States passed laws after entering World War II.
- A major safety concern during this time was quality, which also became a vital part of the war effort. It was unacceptable to produce military equipment that was not safe, and the American armed forces checked almost every unit to make sure it was fit for use.
- By funding training programs in *Walter Shewhart's statistical quality control (SQC) methods*, the armed forces additionally assisted suppliers in raising the level of quality of their products.

Early in The 20th Century: Quality

- The addition of "processes" to quality practices originated back to the turn of the 20th century.
- A combination of actions that receive input, enhance it, and produce an output is referred to as a "process".
- By emphasizing process control from the mid-1920s onward, Walter Shewhart made quality an integral part of the processes that produced the final product.

The History of Total Quality in the United States

- ***Deming, Juran, and Japan***

  - W. Edwards Deming was displeased with American managers after the war and government contracts ended and the majority of statistical quality control programs were discontinued.

  - Joseph M. Juran, who projected that Japan's revolutionary rate of quality improvement would cause Japanese goods to outperform American goods by the middle of the 1970s.

  - Japan expressed the new "total quality" approach in its strategies. Japanese manufacturers concentrated on enhancing all organizational processes through the people who used them, as compared to solely depending on product inspection.

The History of Total Quality in the United States (Cont.)

- ***The American Total Quality Management Response***
  - ❖ American producers reacted to Japanese competition by lowering domestic production costs and limiting imports because they continued to believe that Japanese success was based on pricing.
  - ❖ Total Quality Management (TQM) is the name given to the U.S. response, which placed an emphasis on organizational-wide strategies as well as statistics.
  - ❖ There were several more high-quality initiatives that followed. For instance, the quality-management standards known as ISO 9000 were released in 1987, etc.

Beyond Total Quality Management

- As the 21st century starts, the quality movement has developed. New quality systems have grown beyond the frameworks laid by Deming, Juran, and the initial Japanese quality practitioners.
- The following are a few instances of how quality management has developed:
  - ❖ The ISO 9001 standard was most recently updated in 2015 with a stronger focus on risk management.
  - ❖ The ISO 9000 series of quality management standards experienced adjustments in 2000 with a focus on increasing customer satisfaction.
  - ❖ Etc.

3. Quality assurance and quality assurance systems

What is Quality Assurance?

- The processes and procedures used by an enterprise to guarantee that its goods and services meet a particular standard of quality are referred to as quality assurance, or QA.
- Finding and fixing any mistakes or shortcomings prior to the products or services being made available to customers is the aim of quality assurance.
  - ❖ Let's use a bakery as an example, that wishes to ensure that the quality of its cakes is unchanged. In this instance, quality assurance involves creating a set of guidelines and procedures to guarantee that every cake satisfies those guidelines.
  - ❖ This could entail utilizing particular ingredients, adhering to a recipe, keeping an eye on the baking process, and testing the final product's quality.

Quality Assurance Process

- The steps involved in the quality assurance process can be countless and complex. We can integrate it with the Plan-Do-Check-Act (PDCA) model, a popular tool for managing continuous process improvement, to make it simpler.
  - ***Stage 1 – Plan***
    - A manager or quality assurance technician will establish precise goals to manufacture high-quality products and recommend appropriate procedures to carry out those goals. The company is now able to anticipate any possible issues.
  - ***Stage – Do***
    - The processes that were determined in the previous phase can now be put into action. Through the implementation of quality controls, staff training, and procedure development, the organization carries out its quality plan.

Quality Assurance Process (Cont.)

- The steps involved in the quality assurance process can be countless and complex. We can integrate it with the *Plan-Do-Check-Act (PDCA) model*, a popular tool for managing continuous process improvement, to make it simpler.

  - ***Stage – Check***

    - The test results are verified and contrasted with the expectations. This aids in determining if the products fulfill the necessary requirements. The experts proceed to the next level if they do. If not, however, they return to the initial phase and make the required adjustments.

  - ***Stage – Act***

    - Based on the outcomes of the previous phase, the organization makes improvements to the quality plan.

Methods of Quality Assurance

- Technique and equipment are used in quality assurance (QA) to make sure that goods and services either meet or surpass set standards for quality. There are methods of quality assurance, as follows:

  ❖ ***Identifying processes***

  - To make sure the development team is headed in the right direction, it entails outlining organizational procedures and standards at the early stages of a project.

  ❖ ***Quality audit***

  - It is a systematic approach to determining how the outlined processes and standards perform throughout the development and design phases.

Methods of Quality Assurance (Cont.)

- There are methods of quality assurance, as follows:
  - ***Control charts***
    - Control charts are commonly used by quality assurance engineers to visualize process changes and determine their stability in comparison to historical data.
  - ***Benchmarking***
    - Benchmarking is a popular technique for quality improvement that assesses a procedure's strengths and weaknesses using key performance indicators. It entails contrasting the performance of the company with benchmarks set by the market or industry.
  - ***Cause and effect diagrams***
    - The process of creating a cause-and-effect diagram, also known as an Ishikawa or Fishbone diagram, requires participants to list every potential cause of an issue.

What is a Quality Assurance System?

- An organization can guarantee the quality of its products or services by implementing a quality assurance system, which consists of a collection of processes, controls, and procedures.
- It includes a number of processes that enable enterprises to inspect their goods and services and guarantee quality at every stage.
- This methodology gives enterprises a systematic approach to maintain and satisfy consumer desires and quality standards.

A Quality Assurance System's Importance

- An essential component of running a company or organization is quality assurance.
  - ❖ When providing goods and services, enterprises must adhere to internal and industry standards.
  - ❖ This is especially important for jobs that involve working with customers or products.
- To monitor and address any problems that might affect the quality of these goods or services, a quality assurance system is necessary.
- An effective quality assurance system assists companies in guaranteeing that their clients are happy with the goods or services they offer.

A Quality Assurance System's Components

- ***Quality Planning***
  - ❖ It involves defining your standards, quality goals, and procedures that will enable you to achieve your objectives.
- ***Quality Control***
  - ❖ It entails examining processes, goods, and services to make sure they live up to the organization's quality requirements.
- ***Quality Improvement***
  - ❖ Any organization should prioritize making improvements to its products and services.
  - ❖ For this reason, quality improvement is an essential component of a QA structure.

A Quality Assurance System's Components (Cont.)

- ***Training and Development***
  - ❖ Having a skilled and knowledgeable workforce is essential to continuously meeting quality goals and standards.
- ***Documentation***
  - ❖ When implementing any system, transparency is crucial. The team must thus carefully document every step of the process of putting in place a quality assurance system.
- ***Customer feedback and Satisfaction***
  - ❖ Including your customers' voices in the process is one way to find out if your products are fulfilling their needs.
  - ❖ Finding out what clients like and dislike about your goods or services is crucial.

4. Quality management tools

Quality Management Tools

- Tools for quality management assist organizations in gathering and analyzing data so that employees can comprehend and interpret it.
- With the aid of quality management tools, individuals can identify persistent problems as well as their underlying causes.
- Tools for quality management are essential for raising the standard of goods and services.
- Quality management tools facilitate the interpretation of data, allowing staff members to determine procedures for addressing shortcomings and solving particular issues.

Quality Management Tools (Cont.)

- The tools for quality management are as follows:
  - ❖ Check List
  - ❖ Pareto Chart
  - ❖ The Cause-and-Effect Diagram
  - ❖ Histogram
  - ❖ Scatter Diagram
  - ❖ Graphs
  - ❖ TQM
  - ❖ Flow Chart
  - ❖ Kaizen; etc.

In conclusion

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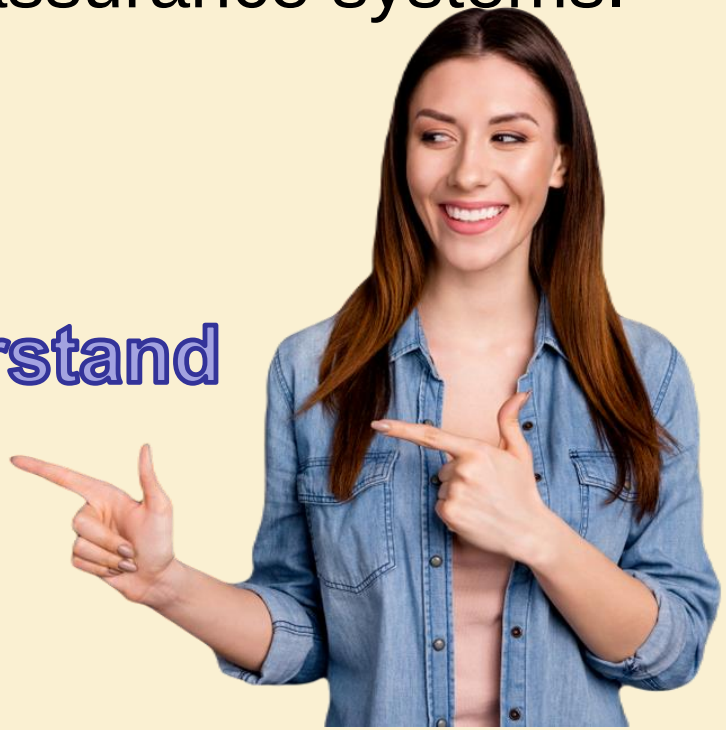

THANK YOU
FOR YOUR ATTENTION

Q&A