

Lecture7: Production and Quality Management in the Organization

1. Definition of Production:

Production generally refers to activities that add value by transforming certain inputs—such as raw materials, human efforts, capital, and equipment—into usable outputs, including goods and services.

2. Production Function:

The production function encompasses a set of activities aimed at utilizing various production factors to generate goods and services while achieving objectives related to cost reduction, adherence to delivery schedules, and improving the quality of goods and services.

3. Production and Operations Management:

Production and operations management is the administrative activity that ensures the optimal use of inputs to convert them into outputs with the highest possible efficiency and effectiveness. This is achieved through applying management functions—planning, organizing, directing, and controlling—to realize the goals of the production function and the organization as a whole.

4. Objectives of Production Management:

4.1 Quantity Objective (Production Volume):

The concept of appropriate production quantity has evolved. Previously, all produced goods were assumed to sell (supply was less than demand), and organizations relied on inventory to meet market needs when demand increased. Today, in highly competitive markets, organizations produce only what is expected to sell, avoiding excess inventory that increases costs and exceeds demand.

4.2 Cost Objective:

The production function must ensure the lowest possible cost to achieve a competitive advantage, especially in highly competitive sectors, unlike monopolistic markets.

4.3 Quality Objective:

Quality is the primary tool to satisfy customers and secure loyalty, providing a competitive advantage beyond price by delivering goods and services that meet the required standards.

4.4 Time Objective:

This refers to the production lead time or the time required to fulfill a specific order.

4.5 Flexibility Objective:

The ability of the production function to adapt to changes in both the quantity and type of demand.

5. Production and Operations System:

This is a set of interrelated activities, processes, and means aimed at transforming inputs into outputs (goods and services) efficiently and effectively through production processes.

6. Objectives of the Production and Operations System:

To achieve the objectives of production and operations management regarding quality, cost, and timeliness, the system coordinates with other functions within the organization to accomplish general goals common to all organizations seeking sustainability. These objectives include:

- Product development
- Production method improvement

- Increasing production capacity
- Enhancing worker performance

7. Types of Production Systems:

7.1 Mass or Continuous Production:

This system produces large quantities of a standardized product continuously, such as oil, soap, or gasoline production.

7.2 Intermittent Production:

Production occurs during certain periods of the year and halts at other times, i.e., it is not continuous.

7.3 Production by Order:

This system operates based on customer orders, producing goods as requested.

8. Functions of Production and Operations Management:

8.1 Production Planning:

Production planning involves determining the quantities to be produced for each product within a specified future period (day, week, month), forecasting, and establishing a plan for all production process steps to achieve production objectives. It addresses questions of what work is required, how it is to be done, where it will be done, when it will occur, and who will execute it. Planning includes:

- Setting objectives and production policies
- Product design
- Planning production processes
- Factory layout and equipment arrangement
- Inventory planning
- Organizing transportation and material handling
- Establishing quality control procedures
- Implementing corrective measures

8.2 Production Organization:

After defining production goals and methods, organization establishes the structural framework, tasks, specifications, resources, and relationships to ensure coordination between activities and personnel. This includes relationships between internal production departments and with other organizational units, integrating activities into functions within the organizational structure, such as production planning, operations planning, production monitoring, maintenance, and cost control.

8.3 Production Control:

This function monitors the product's progression through industrial stages, from raw materials to finished goods and their use by customers. It involves collecting and analyzing information to ensure production meets quantity, schedule, and quality requirements, identifying deviations, and implementing corrective measures.

9. Tasks and Responsibilities of Production and Operations Management:

- Selecting project sites and organizing facilities and capacities
- Planning production capacity and processes
- Designing functions and organizing work
- Ensuring product quality

- Designing products
- Coordinating production resources with demand
- Managing resources and assets
- Scheduling work and assigning personnel and equipment

10. Quality Management in the Organization:

10.1 Concept of Quality:

David Garvin classified quality definitions into five approaches:

- **Perfection Approach:** Quality is an absolute concept representing excellence; it is perceived rather than explicitly defined.
- **Product Approach:** Quality is measurable characteristics of a product, reflecting the extent to which it possesses specific features.
- **User Approach:** Quality is what customers perceive and desire. From this perspective, a product is of good quality if it meets customer preferences, such as defect-free, suitable for use, durable, and reasonably priced.
- **Manufacturing Approach:** Quality is conformity to specifications, ensuring the product or service is correctly produced the first time.
- **Value Approach:** Quality is achieving required specifications at reasonable cost, providing desired performance at an acceptable price.

In summary, quality encompasses the attributes, characteristics, and standards a product or service must meet to satisfy customer needs and preferences at a reasonable cost and within a specified timeframe.

10.2 Concept of Quality Management:

Several related concepts include:

- **Quality Control (QC):** Activities during production to ensure products meet specifications and prevent defects.
- **Quality Assurance (QA):** Predefined activities within a quality system to consistently meet quality requirements, including QC and additional measures like process documentation.
- **Quality Management (QM):** Encompasses QC, QA, customer requirements, and continuous improvement, involving planning, organizing, directing, and monitoring quality activities and providing necessary resources.
- **Total Quality Management (TQM):** A modern approach focused on continuous performance improvement and meeting customer requirements. Edwards Deming pioneered this in post-WWII Japan, emphasizing building quality at all stages—from planning and sourcing to production and delivery. Core TQM principles include continuous process improvement, employee participation, and customer satisfaction.