Study Guide: Total Quality Management (TQM)

What is TQM?

Total Quality Management (TQM) is a management philosophy and approach that focuses on continuous improvement of processes, people, products, and services to achieve customer satisfaction and organizational effectiveness.

TQM has roots that go back to the 1920s when Walter Shewhart applied statistics to quality control in industrial processes. His student, W. Edwards Deming Developed Shewhart's ideas in post-WWII Japan in the late 1940s and 1950s. TQM gained widespread popularity in the 1980s and 1990s and many companies have implemented this philosophy since then. TQM is at the root of Lean, Operational Excellence, Agile, ISO, and Six Sigma.

The 8 Principles of TQM

1. **Customer Focus:** TQM emphasizes understanding and meeting customer needs and expectations. Customer satisfaction is a central goal, and organizations strive to deliver products and services that consistently meet or exceed customer requirements.

2. **Continuous Improvement:** TQM promotes the idea of continuous improvement in all aspects of an organization. This involves a commitment to finding better ways of doing things, eliminating waste, and enhancing efficiency and effectiveness.

3. **Employee Involvement:** TQM recognizes the importance of involving employees at all levels in the decision-making process and improvement initiatives. Employees are encouraged to contribute their ideas, skills, and knowledge to improve processes and outcomes.

4. **Process Approach or Process Centered:** TQM views organizations as a series of interconnected processes. Understanding and optimizing these processes is crucial to achieving overall quality and performance improvements.

5. **Systematic Problem Solving:** TQM employs systematic problem-solving methodologies, such as the Plan-Do-Check-Act (PDCA) cycle, to identify, analyze, and address issues in a structured manner.

6. **Measurement and Analysis or Data-Driven Approach:** TQM relies on data and metrics to measure performance and identify areas for improvement. This data-driven approach helps organizations make informed decisions and track progress over time.

7. **Supplier Relationships:** TQM extends the focus on quality to the entire supply chain. Building strong relationships with suppliers is essential to ensure the quality of inputs and, consequently, the quality of the final product or service.

8. **Leadership Involvement:** Successful TQM implementation requires strong leadership commitment and involvement. Leaders set the vision, communicate expectations, and actively participate in the improvement process.

By adopting Total Quality Management, organizations aim to create a culture of quality and continuous improvement that permeates every aspect of their operations. TQM is not a one-time initiative but an ongoing commitment to excellence and customer satisfaction.

Benefits of TQM

- Productivity and Efficiency Improvement
- Error Prevention
- Faster Problem-Solving
- Improved Supplier Relationships
- Reduced Total Cost of Quality
- Risk Reduction

- Customer Centric Design of new processes, products, and services
- Enhanced Employee Involvement
- Better Decision Making
- Continuous Improvement Culture
- Strategic Alignment
- Compliance with Standards

Unpacking the 8 Principles of TQM

1. **Customer Focus**

- The customer is the one who decides what level of quality they will accept
- TQM uses customer feedback to improve products and services
- Gaining an understanding of the customer provides a long-term competitive advantage
- TQM sustains that a pool quality outcome is a result of the systems and processes, not the people

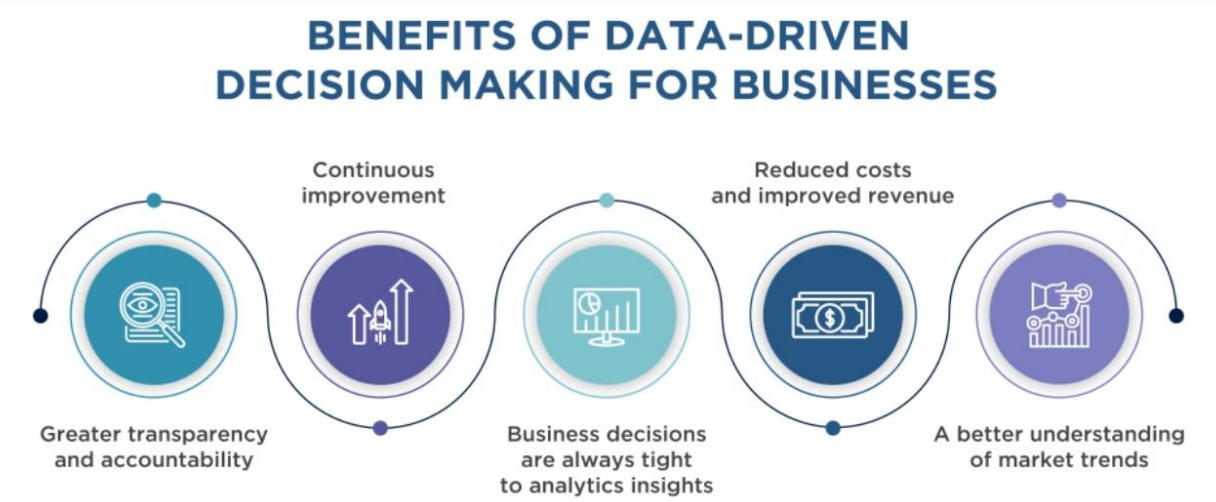
2. **Continuous Improvement**

- TQM promotes the idea of continuous improvement in all aspects of an organization
- Commitment to finding better ways of doing things
- Eliminating waste
- Enhancing efficiency and effectiveness.

3. Process Centric

- TQM views organizations as a series of interconnected processes. Understanding and optimizing these processes is crucial to achieving overall quality and performance improvements
- The downstream process is the internal customer
- The TQM approach also considers how to integrate and optimize the whole system
- The process-centric approach begins with defining how the work is done, identifying what it takes to deliver good quality, and maintaining standards
- TQM emphasizes paying attention to how the work is done, and continuously look for ways to make it easier, better, and faster
- As you study each process, establish statistical process control or SPC.This requires the collection and analysis of data

4. Data Driven Approach



- TQM is a scientific approach to management, tracking business performance, collecting customer feedback and experimentation that relies on data
- TQM uses data and analytics to ensure that the strategy is working for the organization.
- Some quality improvement practices that help organizations make decisions are:
    - The PDCA cycle for problem solving and experimentation (Plan, Do, Check, Act)

- The 7 Quality control tools to collect and analyze data.

The seven basic quality control tools, often referred to as the "**7 QC tools**," are a set of techniques used for process improvement and problem-solving in quality management. These tools were initially popularized by Kaoru Ishikawa, a Japanese quality control statistician, and are commonly used in Total Quality Management (TQM) and Six Sigma methodologies. The seven tools are:

1. **Check Sheets (Tally Sheets):** Check sheets are simple forms used to systematically collect data. They often involve creating a tally of occurrences of specific events or defects. Check sheets help in organizing and interpreting data, making it easier to identify patterns and trends.

2. **Histograms:** Histograms are graphical representations of the distribution of a set of data. They help visualize the central tendency, spread, and shape of a dataset. Histograms are useful for identifying the frequency and distribution of defects or variations in a process.

3. **Pareto Charts:** Pareto Charts are based on the Pareto principle, which states that a significant majority of problems (80%) come from a small number of causes (20%). This tool combines bar and line charts to highlight the most significant factors contributing to a problem. It helps prioritize efforts by focusing on the most critical issues.

4. **Cause-and-Effect Diagrams (Fishbone or Ishikawa Diagrams):** Cause-and-effect diagrams are visual representations that illustrate the possible causes of a specific problem. The diagram takes the form of a fishbone, with the "head" representing the problem and the "bones" representing potential causes categorized into different branches. This tool aids in identifying and organizing the root causes of a problem.

5. **Scatter Diagrams (Scatter Plots):** Scatter diagrams are used to identify relationships between two variables. By plotting data points on a graph, you can visually assess whether there is a correlation between the variables. This tool is valuable for understanding cause-and-effect relationships and identifying patterns in data.

6. **Control Charts (Shewhart Charts):** Control charts are used to monitor the stability and consistency of a process over time. They display data points relative to statistical control limits, helping to distinguish between common cause

variation (inherent to the process) and special cause variation (indicative of a problem or change). Control charts are especially useful for identifying when a process is out of control and requires intervention.

7. **Flowcharts:** Flowcharts provide a visual representation of a process, illustrating the sequence of steps and decision points. They are useful for understanding the flow of work and identifying areas where improvements can be made. Flowcharts help teams gain a comprehensive view of a process and can be instrumental in process optimization.

These seven tools are considered fundamental for quality professionals and process improvement teams. They provide a structured approach to problem-solving and decision-making, helping organizations identify and address issues to enhance overall quality and efficiency.

5. **Strategic Approach:**

- For TQM to be effective, it should be used to achieve the business strategy
- Whether TQM starts at the departmental level or location level, the overall objective should be tied to the organization’s overall strategy
- A common practice to enable a strategic approach is Hoshin planning or Strategy Deployment

Hoshin Kanri, commonly known as Hoshin Planning or Policy Deployment, is a strategic planning and management methodology that originated in Japan. The term "Hoshin Kanri" can be translated as "direction management" or "policy management." This approach is designed to align an organization's strategic goals and objectives with its day-to-day operations.

Here are the key components and **principles of Hoshin Planning:**

- **Goal Alignment:** Hoshin Planning aims to align the strategic goals of an organization with the activities and projects undertaken at all levels. It ensures that everyone in the organization is working toward common objectives that contribute to the overall success of the business.

- **Top-Down and Bottom-Up Approach:** Hoshin Planning involves a dual approach where top-level management establishes strategic objectives, and lower levels of the organization provide input and feedback. This creates a dynamic and inclusive process that incorporates insights from various levels of the organization.

- **Catchball Process:** The process of Hoshin Planning often involves a "catchball" approach, which is a collaborative and iterative communication process. Ideas and objectives are tossed back and forth between different levels of the

organization, fostering collaboration and ensuring that the goals are realistic and achievable.

- **Policy Deployment Matrix (X-Matrix):** The X-Matrix is a visual tool used in Hoshin Planning to display the relationship between the long-term goals (usually three to five years), annual objectives, strategies, key performance indicators (KPIs), and the responsible parties. It provides a clear and concise overview of the entire Hoshin Planning process.

- **Annual Planning Cycle:** Hoshin Planning typically operates on an annual planning cycle. During this cycle, the organization sets its long-term goals, breaks them down into annual objectives, develops strategies to achieve these objectives, and then deploys action plans throughout the organization.

- **PDCA (Plan-Do-Check-Act) Cycle:** The PDCA cycle is often integrated into the Hoshin Planning process. After implementing strategies, organizations continuously assess and adjust their plans based on performance data and feedback. This continuous improvement cycle ensures that the organization remains adaptable and responsive to changes.

- **Visual Management:** Visual management is a key aspect of Hoshin Planning. Visual tools, such as matrices and charts, are used to communicate goals, progress, and performance metrics throughout the organization. This visual representation enhances transparency and accountability.

Hoshin Planning is particularly beneficial for organizations seeking a systematic and integrated approach to strategic planning and execution. By involving employees at all levels, fostering collaboration, and maintaining a focus on continuous improvement, Hoshin Planning helps organizations navigate and adapt to dynamic business environments.

6. **Integrated System Focus**

TQM is considered an integrated system at the strategic level, and at the process level.

At the process level, as people make changes across the organization they must make sure that these build up to larger processes that deliver value to the customer.

At the strategic level, strategy deployment and other methods ensure that the efforts and objectives at each level are aligned with the company’s overall strategy and goals

This means we should always look at the business as a system of interrelated processes.

This thinking starts with the organization but eventually reaches the suppliers and customers in a long term, mutually beneficial relationship.

7. **Total Involvement Principle**

- Requires total involvement in building and continuously improving capable processes
- The people who do the work contribute their ideas and knowledge to make the quality better
- The purpose is to provide the customer with excellent goods, services, and experiences from every level of the organization
- Management at all levels gets involved through their cross functional improvement efforts
- Management is responsible for creating an environment that supports engagement at all levels. This includes:
    - Providing training
    - Encouraging improvement ideas
    - Measuring and recognizing the progress of improvement teams

- Leading by example by embracing fact-based decision making and creating a process-centered, blame-free culture

8. **Communication Principle**

Key points of leaders' communication:

- Why are we doing TQM?
- What is the plan?
- What will change?
- When will TQM come to my team?
- How will we measure success?
- What is expected of me?
- Where will we start?

Based on these 8 principles, we can say that TOTAL in TQM has three meanings:

1. Total Involvement (TQM is part of EVERY person's job)
2. Total Extent (applies to all parts of the enterprise including how we design, develop, market, produce, deliver, and support our goods and services)
3. Total Commitment (Requires goal setting, training, funding, and direction)