

CH V: TQM TOOLS To Minimize Defects And Improve Quality

Quality management involves planning and controlling activities to ensure that the product or service is fit for purpose, and meets design specifications and the needs of customers, according to a CIMA Official Study Text.

Traditionally, quality management focused on quality control, where finished goods were inspected and tested, and substandard 'waste' product disposed of or sold at a lower price. However, contemporary thinking rejects this approach as inefficient and profit-draining. As a result, several tools and philosophies have been developed that aim to focus on and eliminate waste entirely.

CIMA Official Terminology describes TQM as the integrated and comprehensive system of planning and controlling all business functions so that products or services are produced which meet or exceed customer expectations. TQM is a philosophy of business behavior, embracing principles such as employee involvement, continuous improvement at all levels and customer focus. It is also a collection of related techniques aimed at improving quality – such as full documentation of activities, clear goal-setting and performance measures from the customer perspective.

Originally developed in Japan in the 1950s, the aim of TQM is to get things 'right first time', an approach that increases prevention costs, such as system design, but helps to prevent internal and external failure costs. There is an emphasis on participation throughout the value chain, and a commitment to continuous improvement through constant reassessment of processes.

Kaizen

CIMA Official Terminology describes Kaizen as a Japanese term for continuous improvement in all aspects of an entity's performance, at every level.

The philosophy of Kaizen seeks to involve all levels of employees, encouraging suggestions for small incremental improvements across all areas of the business which over time have a major impact. In a manufacturing context, processes are

standardized, assessed and then improved, with the ultimate result being decreased waste and increased productivity.

The five main elements of kaizen

- Management teamwork
- Increased labour responsibilities
- Increased management morale
- Quality circles
- Management suggestions for labour improvement

Six Sigma

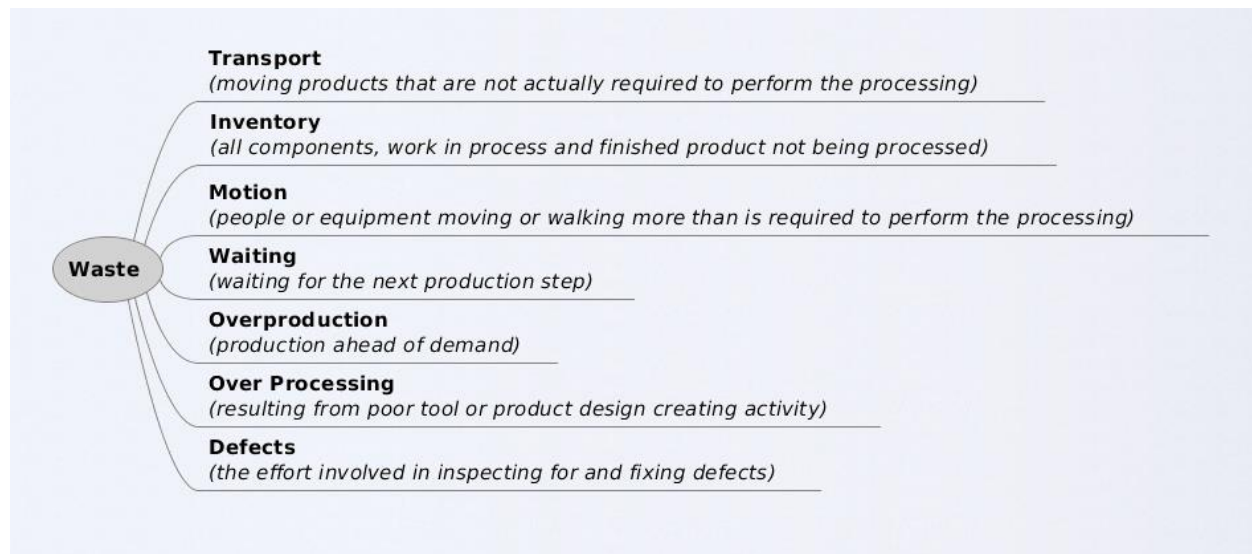
CIMA Official Terminology describes Six Sigma as a methodology based on TQM to achieve very low defect rates. The 'sigma' refers to the Greek letter used to denote standard deviation, so 'six sigma' means that the error rate lies beyond six standard deviations from the mean. To achieve six sigma, an organisation must therefore produce not more than 3.4 defects per million products.

In practice, businesses use techniques such as statistical process control to monitor and chart processes, identifying exceptions to the upper and lower limits and aiming to reduce the number of faults.

Lean or MUDA

is a Japanese word meaning "futility; uselessness; wastefulness", and is a key concept in lean process thinking, like the Toyota Production System (TPS) as one of the three types of deviation from optimal allocation of resources (the others being mura and muri). Waste reduction is an effective way to increase profitability.

From an end-customer's point of view, value-added work is any activity that produces goods or provides a service for which a customer is willing to pay; muda is any constraint or impediment that causes waste to occur.



Process Mapping

A process map is a planning and management tool that visually describes the flow of work. Using process mapping software, process maps show a series of events that produce an end result. A process map is also called a flowchart, process flowchart, process chart, functional process chart, functional flowchart, process model, workflow diagram, business flow diagram or process flow diagram. It shows who and what is involved in a process and can be used in any business or organization and can reveal areas where a process should be improved.

Benefits of process mapping.

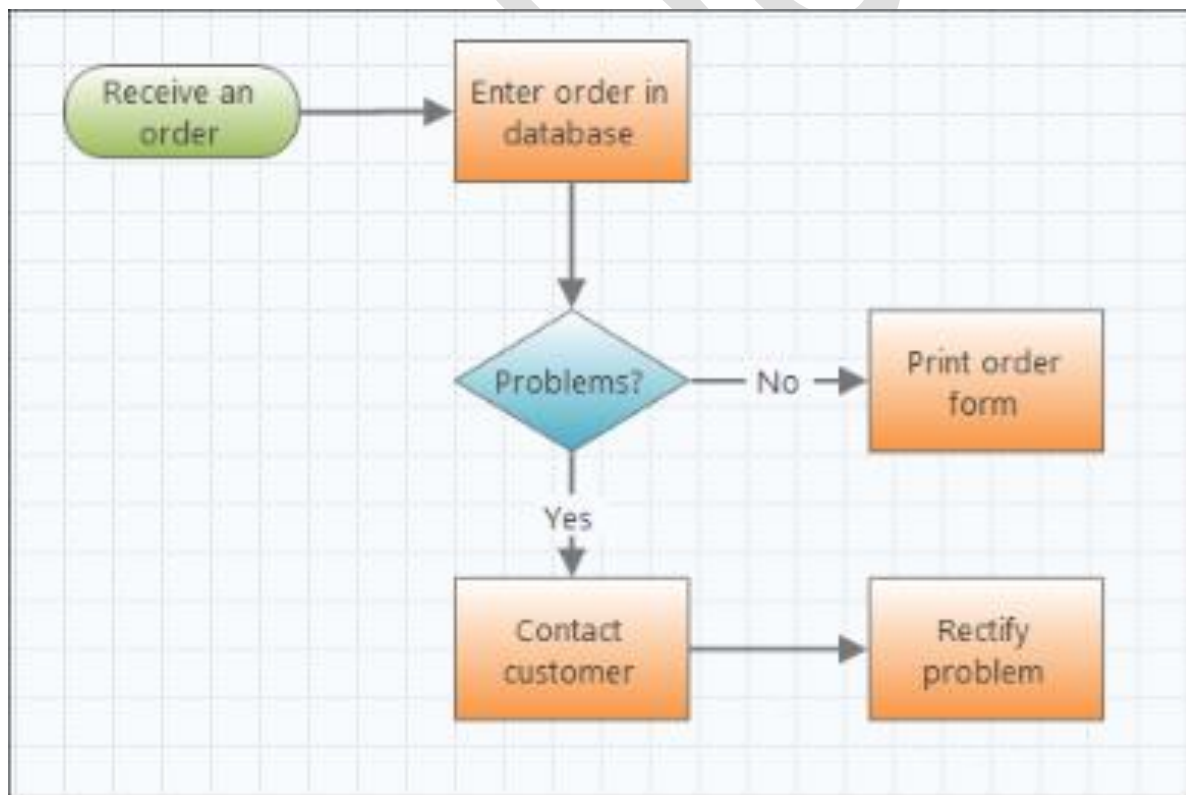
Process mapping spotlights waste streamlines work processes and builds understanding. Process mapping allows you to visually communicate the important details of a process rather than writing extensive directions.

Flowcharts and process maps are used to:

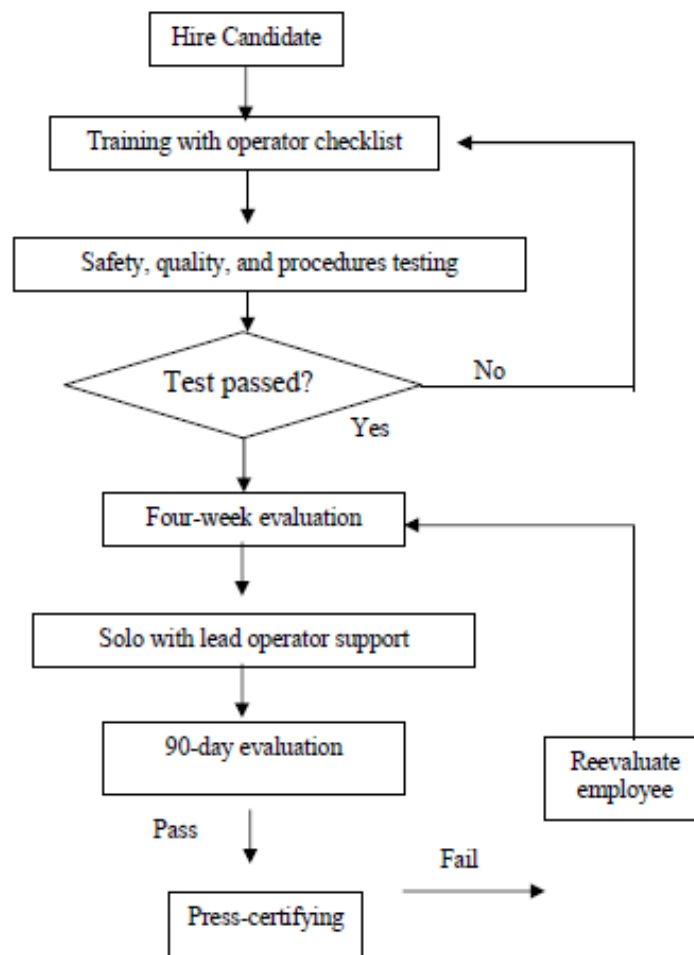
- Increase understanding of a process
- Analyze how a process could be improved
- Show others how a process is done
- Improve communication between individuals engaged in the same process
- Provide process documentation
- Plan projects

Process maps can save time and simplify projects because they:

- Create and speed up the project design
- Provide effective visual communication of ideas, information and data
- Help with problem solving and decision making
- Identify problems and possible solutions
- Can be built quickly and economically
- Show processes broken down into steps and use symbols that are easy to follow
- Show detailed connections and sequences
- Show an entire process from the beginning to the end
- Process maps help you to understand the important characteristics of a process, allowing you to produce helpful data to use in problem solving. Process maps let you strategically ask important questions that help you improve any process.



Example of a Flowchart for Training New Printing Press Operators



5W&1H

What is 5W1H?

That provides the full story of a problem Asking: What, When, Where, Who, Which and How Questioning technique

What is a 5Why Analysis

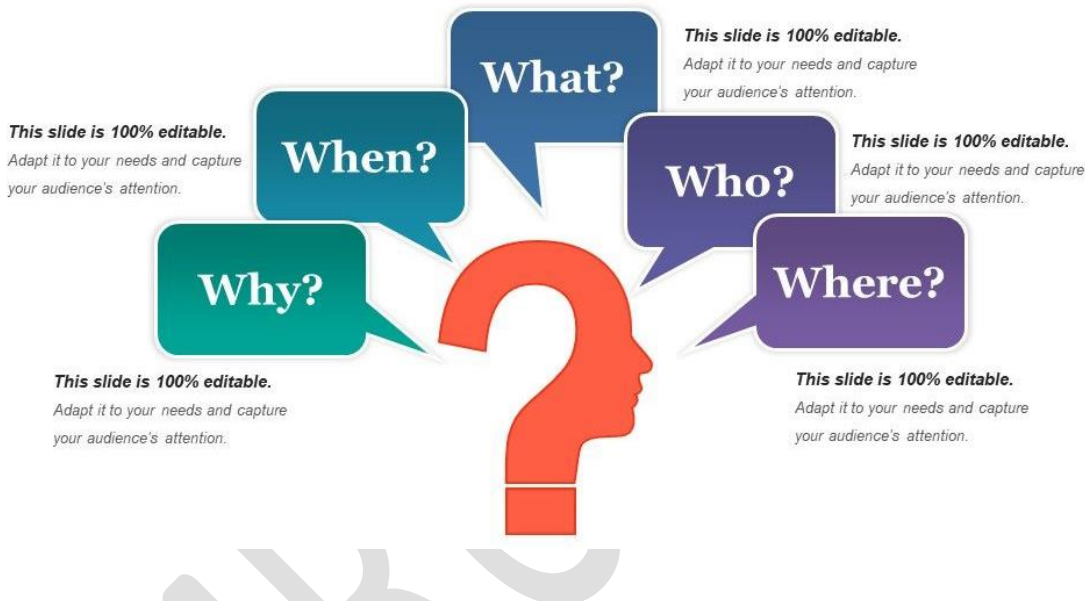
To define a problem/problem statement

5Why Guidelines

- Use short and simple phrases
- Be as precise as possible, avoid general expressions
- Try to quantify

- Do not stop if you can ask “why” another time
- A root cause has been found if you can put an action on it that will
- Eliminate the abnormality
- The analysis should be supported by real facts and figures→ Do small logical steps

Who What When Where Why Silhouette



Core values of Japanese Management

Group Orientation

- Perfectionism:

Quality is judged by customers. All products and services characteristics that contribute value to the customer and lead to customer satisfaction, preference and retention must be the focus of an organizations management system. Customer-driven excellence has both current and future components: understanding today's customer desires and marketplace offerings as well as future innovations. Value and satisfaction may be influenced by many factors. These factors include the organizations relationship with customers that help build trust, confidence and loyalty.

Organizations need to be cognizant of the fact that it's impossible to eliminate all error for the simple reason that all defects cannot be known. Not only that, but by continuing to strive for perfection, they stifle innovation. That's because so much of it depends on trial . . . and error. One way that companies can discourage perfectionism in its people and encourage improvement is to eradicate any and all micro-management. This can be done by giving workers greater authority. The more often they have to ask for permission, the more closely their work will be scrutinized. And the more often their work is evaluated, the more frequently they'll be inclined to avoid making decisions. The one will automatically promote the other.

- Innovation:

Innovation means making meaningful change to improve an organizations products, services and processes and to create new value for the organizations stakeholders. Innovation should lead an organization to new dimensions of performance.

Innovation is no longer strictly the purview of research and development departments, it is important for all aspects of your business and all processes. Organizations should be led and managed so that innovation becomes part of the culture and is integrated into daily work.

- Diligence and Agility:

Success in global market demands agility. All aspects of e-commerce require more rapid, flexible and customized responses. Organizations face ever- shorter cycles for the introduction of new and improved products and services as well as for faster and more flexible responses to customers. Major improvements in response time often require simplification of work units and processes and the ability for rapid changeover from one process to another. Multi skilled and empowered employees are vital assets in such a demanding environment.

All aspects of time performance are critical and cycle time has become a key process measure. Time improvement often drives simultaneous improvements in organization, quality, cost and productivity.