

QUALITY CONTROL

Quality control is the set of measures and procedures to follow in order to ensure that the quality of a product is maintained and improved against a set of benchmarks and that any errors encountered are either eliminated or reduced. The focus of quality control is to ensure that the product and product manufacturing are not only consistent but also in line with customer requirements.



Quality Control Process

The steps to control product & process quality involves:

1. Establish controls

Establishment of specific set of controls to which product and service quality are to conform. These should be properly defined and documented so that there is no issue in understanding and implementing them. The development and the quality department should both be aligned with the controls before the production or development begins.

2. Test and check the Product/service

Checking product or service quality is very important even if the manufacturing was done as per defined controls. The testing includes testing the product or service as a whole and as modules to make sure to cover as many scenarios as possible.

3. Analyze Variance

Analyzing variances between set controls and actual quality. Ideally there should not be any variances but if there are then they should be well analyzed and documented to make sure that right numbers are there and the extent of quality issues can be assessed.

4. Check and Define Limits

There should be proper checking as to whether the variances are within statistical limits. These are defined as tolerance levels.

5. Corrective Decisioning

If the variances are way over the tolerance limits then a corrective action and decision has to be taken for sure. Either it can be rejecting a batch or sending them back for rework to improve the overall quality. The entire process would be repeated to make sure that no product of inferior quality reaches the customers.

6. Benchmark and Feedback

This includes establishing procedures so that the variances do not arise again. Quality control is an ongoing process which keeps improving in every development cycle. These quality data and feedback

should all be properly analyzed and looped back in quality control definition step to ensure that the next time, the quality is even higher within the budgetary limits though.



HISTORY OF QUALITY

It's easy to think of the concept of quality management as strictly a modern-day phenomenon. In fact, some of the core concepts of quality control can be traced back as far as medieval Europe, where 13th-century craftsmen's guilds developed stringent product quality standards, with compliant goods being marked with a special symbol by inspection committees. Similar **quality control methods** remained in use for centuries, and were embedded into many systems throughout the Industrial Revolution from the mid-1700s to the early 19th century. As traditional craftsmen increasingly found employment as factory workers, quality in the workplace was measured through audits and inspections, with defective end goods either scrapped or reworked.

The Early 20th Century

Quality management systems, as we now think of them, first started to be developed in the 1920s, as statistical sampling techniques were introduced into quality control methodology, pioneered by Walter A. Shewhart – sometimes referred to as the father of **statistical quality control**. During this period an ever-increasing demand for greater and greater productivity saw a breakdown in quality control, and it was clear there was a requirement to develop a more robust, structured and logical approach to quality. Crucially, this would involve a shift from simple end-product inspection to the development of quality practices aimed at actively preventing defects by implementing checks and controls earlier in the production process. Key to the development of the **total quality management techniques** that industries still rely on today were experts such as **Joseph M. Juran** and W. Edwards Deming.

Joseph M. Juran

Dr. Joseph M. Juran is considered by many to be the father of many of the quality management techniques still used in industry today. Born in Romania in 1904, after his family emigrated to the United States he gained a degree in electrical engineering. In the years following World War I he began working for the Bell System, which saw his introduction to statistical sampling and quality control. During World War II, Juran served as an administrator in the government's Lend-Lease Administration, and at the war's conclusion opted not to return to Bell, in favor of furthering his work in the field of quality.

After taking a position at New York University's Department of Industrial Engineering, Juran spent the following years refining his theories on quality control while lecturing and consulting extensively for businesses. He also began writing what would become his acclaimed Quality Control Handbook, which was first published by McGraw-Hill in 1951. Juran's handbook is still in print – currently in its seventh edition and considerably expanded from the book's original publication – and is still widely regarded as the go-to text on quality control.

Dr. Juran's reputation in the field of quality management spread not just nationally, but worldwide. In 1954, the Union of Japanese Scientists and Engineers invited Juran to Japan to discuss the theories and techniques he had developed over the years. While there, he held sessions with senior and middle managers from various Japanese firms, explaining how to incorporate quality control activities into their processes.

Juran's visit to Japan helped to kick-start a change in attitude to quality control in the nation's industries, creating a culture within which, over the following years, quality processes became ever more integrated into management thinking and everyday working practices. This allowed Japanese industry to produce higher-quality exports at lower prices, giving it a considerable advantage on the world stage. From the mid-1960s, Juran was highly influential in spreading Japanese attitudes to quality to more widespread application in the United States.

Dr. Juran's quality management approach is based on three key principles. The first is application of the **Pareto principle** – also known as the “80/20 rule.” In the context of quality, this means identifying “the vital few and the trivial many” – in other words, the small percentage of root causes in manufacturing or service processes that account for the largest effect in terms of defects or cost.

The second principle of Juran's approach to quality is management theory. This involves a change of thinking away from mere focus on the quality of the end product, to a wider examination of the human dimension of quality management. Education and training for managers in the workplace is as important as the nuts and bolts of the manufacturing process, while other human factors such as resistance to change also need to be accounted for. Juran's management theory was fundamental in expanding quality management principles beyond the factory floor to principles that could also be applied to service-related processes.

The final principle consists of three processes often known collectively as the **Juran Trilogy**. These three elements are quality planning (the design stage), quality control (ongoing inspections to ensure that processes are in control) and **quality improvement** (including proactive refinement of processes to improve processes).

In addition to many decades of work on quality management and consulting with organizations worldwide, in 1979 Dr. Juran founded The Juran Institute, with a mission to “create a global community of practice to empower organizations and people to push beyond their limits.” Still operating today as Juran, the institute he founded remains focused on equipping organizations with the tools they need to achieve long-term solutions to everyday problems.

W. Edwards Deming

While Dr. Juran is often hailed as “the father of quality,” quality management as we understand it today would likely not exist without the contributions of another key figure – W. Edwards Deming. Deming was born in 1900, and by the age of 28 had gained degrees in engineering, mathematics and physics, and a doctorate in mathematical physics from Yale. He spent the next decade writing and lecturing in the fields of math, physics and statistics, and during this time became interested in the statistical quality control principles of Walter Shewhart. Specifically, Deming was interested in expanding Shewhart’s techniques beyond manufacturing, to administrative and management activities.

Deming worked with the US Census Bureau from 1939, and his development of Shewhart’s statistical process control innovations resulted in a six-fold increase in productivity. After World War II, Deming was posted to Japan as an adviser to the Japanese Census. In common with Dr. Juran, Deming became involved with the Union of Japanese Scientists and Engineers, and his contributions directly led to the development of what we now recognize as total quality management becoming widespread in Japanese industry. His work is believed to have contributed greatly to the reconstruction of Japan’s post-war economy, and in 1960 he was awarded the Order of the Sacred Treasure for his services to the nation’s economic resurgence.

While Deming’s management principles weren’t widely adopted in the United States over the next couple of decades, by the early 1980s it was evident that there was a gap in quality between Japanese

and American products. One of the first US companies to seek Deming's input was Ford Motor Company, which between 1979 and 1982 had incurred \$3 billion in sales losses. As a consultant, Deming asked tough questions about the company's organizational and management culture – ultimately claiming that management actions were responsible for 85% of quality problems. As unwelcome as this message may have been, by 1985 the changes that Deming had introduced contributed to Ford becoming the most profitable US auto company.

Edwards Deming died in 1993, but in the years before his death he continued consulting, and authored a number of seminal books, including *Quality, Productivity, and Competitive Position* – later retitled *Out of the Crisis* – which outlined his critical “14 Points for Management.” Shortly before his death, Deming founded the W. Edwards Deming Institute, which continues to honor his legacies today.

The Quality Revolution

The modern quality revolution began in the 1970s, when the quality of Japanese goods surpassed those of the US and Europe. Action was taken to combat the imbalance and the 1980s saw a big emphasis on quality improvement, plus the adoption of new practices such as Just in Time (JIT).

By the 1990s, quality improvement methodology that had proved successful in manufacturing was being applied to the working practices of organizations. Toward the end of that decade, Motorola developed the concept of **Six Sigma**, which asserts that all products and processes must strive for perfection, and Juran's method had been employed to create the data-driven improvement cycle, **DMAIC**.

The 2000s saw the combination of Lean and Six Sigma, plus other **continuous improvement methods**.

Finally, in the 2010s, Continuous Improvement and **Quality 4.0** were introduced.

Certification – Evolution of Quality Management Certification Systems

The following is a timeline of key dates and events in the evolutionary process of quality management certification systems.

- 1959: U.S. Dept. Defense MIL-Q 9858 Standard is established.
- 1969: MIL-Q 9858 is revised into the NATO (North Atlantic Treaty Organization) AQAP (Allied Quality Assurance Publications) series of standards for quality assurance systems.
- 1974: BSI (British Standards Institution) publishes the BS 5179 “Guidelines for Quality Assurance.”
- 1979: BSI publishes the BS 5750 series of standards.
- 1987: ISO – the International Organization for Standardization – publishes the ISO 9001 standards, based on the BS 5750 series.
- 1994: ISO releases the first revision of the ISO 9001 standards.
- 2000: ISO releases a second revision and merges ISO 9002/3 into 9001.
- 2008: The third revision of ISO 9001 is released.
- 2015: **ISO 9001:2015** is released and becomes a guideline for organization-level quality management systems, and closer to a TQM model.

THE FIRST GURUS OF QUALITY

Quality management is **the act of overseeing all activities and tasks needed to maintain a desired level of excellence**. Quality management includes the determination of a quality policy, creating and implementing quality planning and assurance, and quality control and quality improvement.



According to the ISO 9001:2015 standard, there are seven principles of quality management. Our teams of specialists can assist you in obtaining this certification. These principles are:

- Customer focus
- Leadership
- Engagement of people
- Process approach
- Improvement
- Evidence-based decision making
- Relationship management

1. Customer Focus

As the title suggests, this aim is to focus on both direct and indirect customers. Your goal is to meet customer requirements and exceed them. The focus is on netting sustained success by focusing on customers' needs. Providing value-added services at every stage is vital. Customer focus means you need to manage customer relationships and watch customer satisfaction. Encourage your staff to talk to customers and find out what their needs are. You can then tailor your objectives to meet their needs.

2. Leadership

The aim of leadership should be to establish unity of purpose. By doing this, your leaders improve effectiveness and efficiency within your company. Leadership comes down to communicating your business's quality objectives. Effective communication from leadership is vital. It aligns your company's vision, direction, and policies to achieve its aims. Share your commitment to quality with your people to inspire and encourage them. They'll then contribute to your ethos of quality.

3. Engagement of People

The ISO 9001:2015 statements read:

“Competent, empowered, and engaged people at all levels throughout the organization are essential to enhance its capability to create and deliver value”.

By engaging and empowering people at all levels, you encourage them to thrive. A thriving workforce adds value to their organization's quality management. You can meet this goal by talking to your staff and affirming employees' contributions to your business.

4. Process Approach

Quality management systems consist of several different processes working together. Appoint people to develop and oversee these processes to be effective. Ensure that everybody understands the objectives and knows what the end result should be. Share information to help the continual improvement of your quality management. The process approach aims to provide consistent and predictable results. Consistency enhances customer confidence in your ability to deliver.

5. Improvement

Focus on constant improvement by responding to market changes and customers' changing needs. Gear all your quality systems toward finding new ways to do things and make the services or goods you provide better. An organisation that loses the ability of continual improvement loses business. Avoid resistance to change. Something that worked 10 years ago may not be relevant today. Your organisation needs to evolve and improve to remain competitive.

6. Evidence-Based Decision-Making

Ensure that your people base their choices on the gauging of on-hand data and information. Make relevant data available to the decision-makers in your organisation, encouraging objectivity. Having access to reliable data allows for an improved decision-making process. Also, it helps with your company's capability to review and change decisions or opinions. It also allows you to determine past decisions' effectiveness. To make this possible, you need to train staff to study and test data and information that passes through their hands.

7. Relationship Management

ISO 9001:2015 focuses on relationship management with suppliers and partners. Expand this to include clients. The idea works on the theory that you need to have a good relationship with all interested parties. You need a good rapport with partners for them to supply you efficiently when activities overlap. By pooling information, expertise, and resources, you benefit all parties involved. A good relationship with suppliers results in an effective and efficient supply chain.

The important contributions of the quality gurus are summarised below:

Contributor	Key contributions
<i>Walter A. Shewhart</i>	<i>Statistical control charts; PDCA cycle.</i>
<i>Edwards Deming</i>	<i>14 points; Deming cycle; 7 deadly diseases of management; system of profound knowledge.</i>
<i>Joseph M. Juran</i>	<i>Quality is fitness-for-use; internal customer; cost of quality; quality trilogy, 10 steps for quality improvement; breakthrough concept.</i>
<i>Philip Crosby</i>	<i>Four absolutes of quality; 14 steps to quality management; quality vaccine.</i>
<i>Masaaki Imai</i>	<i>Kaizen.</i>
<i>Armond V. Feigenbaum</i>	<i>Industrial cycle; hidden plant; crucial elements of total quality.</i>
<i>Kaoru Ishikawa</i>	<i>Company-wide quality; quality circles; cause-and-effect diagram.</i>
<i>Genechi Taguchi</i>	<i>Quality loss function; product development stages.</i>
<i>Shingeo Shingo</i>	<i>Zero quality control; poka-yoke; JIT related concepts.</i>

How is Service Quality different from product quality?

Parameters	Service Quality	Product Quality
Definition	Its a direct interaction between customer and the service provider	Organizations ability to produce low cost products at high volume and to the degree that the products meets specification
Measures	<ul style="list-style-type: none"> ➤ Skills necessary ➤ Communication ➤ Does enough to understand customer needs ➤ Polite & Respectful ➤ Attitude and expertise 	<p>Physical dimensions- Measures length, width</p> <p>Performance- Measures how well it works</p>
Dimensions	<p>Reliability</p> <p>Responsiveness</p> <p>Assurance</p> <p>Empathy</p>	<p>-Number of defects per unit produced</p> <p>-number of products returned</p> <p>-warranty claims</p> <p>Quality award won</p>

Qualities of Leadership

Following are the qualities of good leadership:



1. **Selflessness:** The base and the heart of leadership quality is selflessness. The leader should set his objectives without being selfish and self-centric. The other two elements that a leader should have along with selflessness is are character and knowledge. Leaders, by the energy of their character, get the job done by managing people suitably. And on the ground of their knowledge, decides what to do in any circumstances. Sheer character not assisted by knowledge puts a ceiling in a leader's capability.
2. **Courage:** The most astonishing human quality that a leader must retain is the courage to face the situations and take responsibility for success and failure of the decision taken by him or by his/her team members. A good leader is the one who has the courage to take responsibility for failure but gives credit to his/her team when succeeds.
3. **Will power:** Will power is a quality which is uniformly required in all prominent leaders. Thousands of difficulties emerge, and failures took place while executing plans. A good leader should have strong willpower to face hurdles instead of getting disappointed with failures while

implementing the plans. The strong will power of a leader boosts his/her teammates will power and encourages them to give their best.

4. **Efficient communication:** Good communication is the key to become an admirable leader. The logic behind it is clear if the leader carries all types of leadership qualities, yet if he fails to communicate properly, he will never be an admirable leader.
5. **Knowledge:** Leaders learn by way of their exertions which build up their knowledge. They intensify their experience by working in the department of work which can't be interchanged by any device. A leader is also enforced to have a knowledge of handling people; although, appropriate knowledge of job also strengthens the confidence level of the leaders.
6. **Honesty and Integrity:** Honesty and integrity are the priceless assets of a leader and treated as the most commendable attribute of a leader. The leader should be honest with both his employees and the management of the organization. A leader should always keep their integrity above all else as once it ruins; it gets lost forever.
7. **Consistency:** Leadership effectiveness without consistency is illogical. The path of every leader is rare to oneself. Consistency helps in attaining a leadership position; however, it is not the only approach for effective leadership; it works along with other aspects of good leadership quality. A good leader can correct the rough spots but never let their team confuse by displaying inconsistency in his/her decisions.
8. **Visionary outlook:** It is one of the unique traits of the leader. They must be competent to look further where the company is standing today, recognize where the business is moving, and use that perspective to run the company ahead.

Leadership Grid

The leadership grid is a model that helps managers assess and improve their management styles. The leadership grid measures managers based on two behavioral dimensions: their concern for production and their concern for people. The bottom of the leadership grid, or the x-axis, measures concern for production on a scale of one to 10. The y-axis measures concern for people on a similar scale.

Leadership Styles With in The Leadership Grid

Each corner of the leadership grid's four quadrants represents a different leadership style. These four styles, plus the style in the middle of the grid, make up the five leadership styles, which are:

1. Impoverished management

Impoverished management represents the lower left side of the leadership grid. In this management style, the manager has little concern for results or their employees. This typically leads to outcomes such as a lack of team motivation or ineffective working systems. Impoverished management is often the result of a manager who focuses more on preserving their role within the organization, rather than focusing on others or taking actions to improve the organization.

2. Produce-or-perish management

The produce-or-perish management style represents the lower right side of the leadership grid. With this style of management, the manager focuses on receiving the best results for the organization with little regard for their employees. Common traits of a produce-or-perish management style include strict work rules and managers who don't consult with others. As a result, produce-or-perish management styles rarely have high team morale, making it difficult to achieve long-term results.

3. Country club management

On the top left side of the leadership grid, you have country club management. This leadership style is so-called because it focuses mostly on ensuring happy employees rather than business results. In a country club management atmosphere, you might find a relaxed and fun workplace with less-than-ideal productivity. Country club management often develops when the manager believes ensuring all employees are happy and secure results in the best outcome for the organization.

4. Team management

Team management represents the top right side of the leadership grid and is the most effective management style. With this style, the manager focuses equally on achieving the best results and ensuring their team members are happy within their positions. Managers work to motivate their employees to be productive, while still creating an enjoyable work environment. One way managers do this is by involving their employees in decision-making and helping everyone feel like they're part of the team.

5. Middle-of-the-road management

At the center of the grid, you find the middle-of-the-road management style. With this style, the manager tries to balance both production results and employee happiness but doesn't fully reach either goal. This often occurs when the manager doesn't properly motivate their team or makes compromises that don't benefit the business. As a result, the manager doesn't achieve maximum productivity or team performance.

QUALITY INFORMATION SYSTEM

Quality Information System (QIS)

An information system designed to meet the needs of the quality system. Data accuracy and integrity are musts.



A Quality Information System (QIS) is an integrated set of activities that provides timely, accurate, relevant, comprehensive, and reliable information about the quality of products or services produced by organizations. A QIS can provide decision support tools to help managers make informed decisions about their operations. It also helps them identify areas where they need improvement in order to meet customer expectations and improve overall performance.

The Quality Information System consists of all those actions taken to collect, analyze, interpret, and use quality-related information to manage processes and systems so that they produce consistently high-quality products or services. The term "information" refers to any type of knowledge that has been acquired through experience or observation. This includes both quantitative and qualitative aspects of product or service characteristics. In addition to collecting and analyzing this information, it should be used to develop strategies to improve the quality of the process itself.

INFORMATION SYSTEM FOR DESIGN QUALITY

A design quality information system is an integrated set of actions that collects, analyzes, interprets, and uses design-related information to manage the design process to produce consistently high-quality products.

It may include:

- Data collection - gathering information (design inputs) from various sources
- Analysis - interpreting the data to determine its significance
- Interpretation - determining ways to apply the results to current and future designs
- Application - applying the results to current and new designs
- Communication - presenting the results to others involved in the design process

Strategy-Deployment Process - The 7 Steps



QUALITY MANAGEMENT STRATEGIES

1. Using a Quality Register

A quality register is a document that summarizes all the quality management activities that are either planned or completed. It acts as a unique reference for every quality activity, and a pointer to a product's quality records. Besides, it provides a summary of the type and number of quality activities that have been undertaken. Successful top managers plan their activities using a quality register. Once activities get started, they update them with the results about quality control operations. They use a quality register as a form of a diary of planned and undertaken activities. Besides, anytime the management has some planned events that they undertake, they note them in the diary.

2. Continuous Improvement

Continuous improvement is an ongoing effort aimed at improving services, products, and processes. Continuous improvement streamlines workflows as it is the number one method top managers use to reduce operating overhead. It facilitates efficient workflows that save both time and money, thereby

allowing executives to minimize the wastage of time and effort. Moreover, continuous improvement minimizes project costs and helps to prevent overages. In settings where teams cannot practice continuous improvement constantly in their everyday work, successful executives hold rapid improvement events. These can last for one to five days based on the depth and breadth of what is covered. Top managers can establish a culture that stresses quality improvement

3. Customer Focus

Customer focus basically means prioritizing customers' needs. Successful top managers satisfy their customers and maintain strong customer relationships by establishing customer-focused businesses. Moreover, they succeed by not just focusing on customers' needs but exceeding their expectations. To become successful, an organization needs to understand the customers' current and future needs and cater to them. Managers should make an effort to follow up on some customer service situations. This will inform them of areas where their products require improvement. They should then take action to improve the quality of the product or service while communicating effectively with the customers. This will result in customer loyalty. When customers are loyal, results will be reflected in increased revenue.

4. Effective Leadership

Leaders are responsible for creating and maintaining the internal environment. Having the right leaders is therefore a top strategy that makes a significant impact when it comes to running a successful business. Good leadership is at the core of successful businesses. Unity of purpose is provided by good leaders. They also establish the direction of the organization. Good leaders engage employees and lead them towards achieving the organization's goals. When leaders involve the employees in setting clear organizational goals and objectives, employees get motivated to work. They in turn improve their productivity and loyalty. Top managers, being part of the leaders, need to be proactive and lead by example. They should show workers to be responsible and following through with the actions of their employees to ensure they do the right thing.

5. Process Approach

A process is a set of activities that uses resources such as people and machines to transform inputs into outputs. The process approach is a strategy that involves managing a business as a system of processes and not departments, people, or products. Managers use the process approach to manage and control

processes that make up their businesses, interactions between processes, and inputs as well as outputs that bond those processes together. If the top management has a good process, it will have good results. A good example of a process is baking a cake. If you follow a proven recipe in baking the cake (process), it will provide a good cake (output).

6. People Engagement Strategy

Another effective quality management strategy is the engagement of employees. Whether the staff is part-time or full-time, they should be fully involved in creating and delivering value. Top managers strategize to encourage employees to constantly improve their skills and maintain consistency. Engaged workers understand their roles better and are more proactive. But how can you get your employees engaged with quality? Though it is not easy, it is possible. Top managers do so by being bold, creative, and flexible.

7. Evidence-Based Decision-Making Strategy

Effective ideas are based on the analysis of data and information. Guess-work and instinct are not the right bases for decision making. When making decisions, top management should adapt to a factual approach. The decisions should be based on verified and analyzed data. This helps the business to have an improved understanding of the marketplace. Therefore, the tasks that they perform produce the desired results. Additionally, they justify their past decisions. The quality of their services and goods is thus significantly improved.

8. Periodic Internal Audits

An internal audit is the onsite verification activity that includes inspection or examination of internal controls that include accounting processes and corporate governance. Internal auditing is done to ensure compliance with regulations and laws. Successful top managers ensure quality is maintained by ensuring that internal audits are conducted periodically. They use internal audits to get tools that are necessary for achieving operational efficiency by detecting issues and rectifying lapses early on. Internal audits play a major role in the governance and operations of a company.

NEED FOR QUALITY APPROACH TO STRATEGY

1) Build a company culture that emphasizes quality improvement. Establishing a workplace culture that stresses quality improvement is a great way to keep quality management at the forefront of employees' minds. One specific strategy to reinforce this culture is to reward employees for illustrating a commitment to quality.

2) Design a robust training program. Outstanding quality management begins with a well-designed training initiative. Workers should be introduced to the significance of quality management during their initial employee training. Additionally, adherence to quality standards should be stressed during ongoing training and whenever new processes or procedures are introduced.

3) Develop a detailed quality inspection program. The quality inspection phase of the manufacturing process is critical to ensuring accurate product design. It is often a manufacturer's last chance to catch any design flaws prior to product shipment, so a thorough inspection process is imperative.

4) Ensure that equipment is regularly maintained. Equipment maintenance is vital to ensuring accurate product design and employee safety. Failure to focus on preventive maintenance can result in the manufacture of flawed plastic parts and, ultimately, device failure.

5) Schedule periodic internal audits. Internal audits are an excellent way to assess supply chain efficiency and adherence to regulatory standards. Internal audits can also help improve customer satisfaction and can help parts manufacturers prepare for external safety and compliance evaluations.

QUALITY STANDARDS

Quality standards are defined as documents that provide requirements, specifications, guidelines, or characteristics that can be used consistently to ensure that materials, products, processes, and services are fit for their purpose.

Standards provide organizations with the shared vision, understanding, procedures, and vocabulary needed to meet the expectations of their stakeholders. Because standards present precise descriptions and terminology, they offer an objective and authoritative basis for organizations and consumers around the world to communicate and conduct business.



PRINCIPLES OF QUALITY STANDARDS

Organizations turn to standards for guidelines, definitions, and procedures that help them achieve objectives such as:

- Satisfying their customers' quality requirements
- Ensuring their products and services are safe
- Complying with regulations
- Meeting environmental objectives
- Protecting products against climatic or other adverse conditions
- Ensuring that internal processes are defined and controlled

Use of quality standards is voluntary, but may be expected by certain groups of stakeholders. Additionally, some organizations or government agencies may require suppliers and partners to use a specific standard as a condition of doing business.

Purchase ASQ Standards

ASQ QUALITY STANDARDS

Topic:	Standard:
<u>Quality Management</u>	<u>ISO 9001</u>
<u>Auditing</u>	<u>ISO 19011</u>
<u>Environmental Management</u>	<u>ISO 14001</u>

<u>Risk Management</u>	<u>ISO 31011</u>
<u>Social Responsibility</u>	<u>ISO 26000</u>
<u>Sampling by Attributes</u>	<u>Z1.4</u>
<u>Sampling by Variables</u>	<u>Z1.9</u>
<u>Food Safety</u>	<u>ISO 22000</u>

Types of quality.

- Product Quality. Products that fit customer needs and fulfill customer expectations. ...
- Service Quality. Services involve intangible elements of quality such as environments, customer service and customer experience. ...
- Experience Quality. ...
- IT Quality. ...
- Data Quality. ...
- Information Quality.



Human Resource Management is a management function concerned with hiring, motivating, and maintaining the workforce in an organization. Human resource management deals with issues related to employees such as hiring, training, development, compensation, motivation, communication, and administration. Human resource management ensures the satisfaction of employees and a maximum contribution of employees to the achievement of organizational objectives.

According to **Armstrong (1997)**, Human Resource Management can be defined as “*a strategic approach to acquiring, developing, managing, motivating and gaining the commitment of the organization’s key resource – the people who work in and for it.*”

Functions of Human Resource Management

Human Resource Management functions can be classified into the following three categories.

- Managerial Functions,
- Operative Functions, and
- Advisory Functions.

The *Managerial Functions* of Human Resource Management are as follows:

1. Human Resource Planning - In this function of HRM, the number and type of employees needed to accomplish organizational goals are determined. Research is an important part of this function, information is collected and analyzed to identify current and future human resource needs and to forecast changing values, attitudes, and behavior of employees and their impact on the organization.

2. Organizing - In an organization tasks are allocated among its members, relationships are identified, and activities are integrated towards a common objective. Relationships are established among the employees so that they can collectively contribute to the attainment of the organization's goal.

3. Directing - Activating employees at different levels and making them contribute maximum to the organization is possible through proper direction and motivation. Taping the maximum potentialities of the employees is possible through motivation and command.

4. Controlling - After planning, organizing, and directing, employees' actual performance is checked, verified, and compared with the plans. If the actual performance is found deviated from the plan, control measures are required to be taken.

The *Operative Functions* of Human Resource Management are as follows:

1. Recruitment and Selection - Recruitment of candidates is the function preceding the selection, which brings the pool of prospective candidates for the organization so that the management can select the right candidate from this pool.

2. Job Analysis and Design - Job analysis is the process of describing the nature of a job and specifying the human requirements like qualification, skills, and work experience to perform that job. Job design aims at outlining and organizing tasks, duties, and responsibilities into a single unit of work for the achievement of certain objectives.

3. Performance Appraisal - Human resource professionals are required to perform this function to ensure that the performance of employees is at an acceptable level.

4. **Training and Development** - This function of human resource management helps employees acquire skills and knowledge to perform their jobs effectively. Training and development programs are organized for both new and existing employees. Employees are prepared for higher-level responsibilities through training and development.

5. **Wage and Salary Administration** - Human resource management determines what is to be paid for different types of jobs. Human resource management decides employee's compensation which includes - wage administration, salary administration, incentives, bonuses, fringe benefits, etc.,.

6. **Employee Welfare** - This function refers to various services, benefits, and facilities that are provided to employees for their well-being.

7. **Maintenance** - Human resource is considered an asset for the organization. Employee turnover is not considered good for the organization. Human resource management always tries to keep their best performing employees with the organization.

8. **Labour Relations** - This function refers to human resource management interaction with employees represented by a trade union. Employees come together and form a union to obtain more voice in decisions affecting wage, benefits, working conditions, etc.,.

9. **Personnel Research** - Personnel research is done by human resource management to gather employees' opinions on wages and salaries, promotions, working conditions, welfare activities, leadership, etc.,. Such researches help in understanding employee satisfaction, employee turnover, employee termination, etc.,.

10. **Personnel Record** - This function involves recording, maintaining, and retrieving employee-related information like - application forms, employment history, working hours, earnings, employee absents and presents, employee turnover, and other data related to employees.

The *Advisory Functions* of Human Resource Management are as follows:

Human Resource Management is expert in managing human resources and so can give advice on matters related to human resources of the organization. Human Resource Management can offer advice to:

1. Advised to Top Management

The personnel manager advises the top management in the formulation and evaluation of personnel programs, policies, and procedures.

2. Advised to Departmental Heads

The personnel manager advises the heads of various departments on matters such as manpower planning, job analysis, job design, recruitment, selection, placement, training, performance appraisal, etc.

WHAT IS THE DIFFERENCE IN RECRUITMENT AND SELECTION?

Recruitment and selection are distinct phases for hiring professionals.

RECRUITMENT AND SELECTION ARE DISTINCT PHASES FOR HIRING PROFESSIONALS.

When it comes to recruitment, the focus is on attracting, selecting, and designing the appropriate candidates for one or more positions within an organization, permanent or temporary.

The term can be defined as the attraction of people to be incorporated into the routine activities of the organization by pre-defining work requirements and specifying the employee profile. It also measures an individual's likelihood of joining the organization, and its compatibility with the company's mission, vision and values.

Recruitment can also be carried out in the processes developed for choosing individuals for unpaid positions, such as volunteer roles or training programs.

WHAT IS SELECTION?

The selection process aims at conducting interviews and evaluating candidates for a specific job, defined at recruitment, selecting. Finally, an individual for the vacancy, based on predefined criteria. Selection can range from a very simple process to a very complicated one, which depends solely on the company you hire and the position the candidate is looking for.

It is important to remember that in any and all selection process, it is necessary to obey certain labor laws, preserving both company and candidate, in order to avoid discriminatory acts during the selection of the employee.

WHICH COMES RECRUITMENT OR SELECTION FIRST?

Recruitment and selection are different processes. First is the recruitment that has as its premise: Attraction, selection and design of the appropriate candidates for the selection phase. Then the selection is made, which aims to conduct the interviews and evaluate the candidates, in order to select an individual for the job.

FACTORS THAT INFLUENCE RECRUITMENT AND SELECTION

All organizations, whether large or small, put time and resources into the process of recruiting and selecting employees for the activities. However, they do not consider the same criterion.

There are factors that are often not considered by organizations, but directly influence the process. Administrative recruitment factors can be broadly divided into internal and external factors.

EXTERNAL FACTORS

- Supply and demand;
- Unemployment rate;

- Intern market;
- Place where the applicant resides;
- Company image.

Supply and demand are the metric of the specific skills required in the job market. If the demand for a particular skill is high compared to the supply, a larger recruitment effort may be required. Thus, the higher the unemployment rate in a given area, the simpler the process of recruiting and selecting the company.

The unemployment rate has become one of the influencing factors in the recruitment and selection process. The number of unskilled candidates is very large, which causes difficulties in attracting and retaining suitable candidates. On the other hand, with the unemployment rate decreasing, it is important to explore new ways to recruit candidates.

The company's image also directly influences the number of candidates who will be attracted to the position. In many cases, the applicant not only targets the salary amount, but prioritizes the company's qualifications and working conditions.

It is very common for companies to prioritize candidates residing in their respective state. This avoids major changes and travel expenses for interviews and future allowances. The company's image is also extremely important as it is responsible for attracting a large number of candidates with varying levels of qualification.

INTERNAL FACTORS

- Recruitment policy;
- Company size;
- Cost growth and expansion.

Most organizations have a policy of recruiting employees internally or externally. Recruitment by appointment is one of the most used by organizations, as employees themselves know the company better, making it easier to recommend candidates who can easily adapt to the culture of the organization.

WHAT ARE THE TYPES OF RECRUITMENT AND SELECTION?

Recruitment and selection methods or sources are defined before the company begins to recruit candidates and should consider the source and type of employee you are looking for.

There are usually two types of sources from which any organization can look for potential employees, both internal and external. But in addition to them, it is possible to perform mixed recruitment and online.

INTERNAL RECRUITMENT

Internal recruitment methods include opening position changes, distributing announcements within the organization, searching the organizational database for the relationship of skills required to perform the job, to match the competencies held by current employees. This recruitment and selection method explores internal sources, filling positions and encouraging promotions.

The in-house recruit can drive job satisfaction and employee motivation as they see a new career opportunity available. Filling responsible positions with existing employees ensures that they are rooted in the culture of the organization. However, problems can arise if the internal promotion system is not seen as fair.

The best way to avoid negative impact when hiring or promoting an employee is to implement fair methods and procedures. By presenting the rules and steps of a structured promotion process, the company avoids discomfort by making employees understand and accept the outcome of the process.

EXTERNAL RECRUITMENT

External recruitment methods include the form of disclosure. The choice of recruitment method, internal or external, made by managers, depends directly on the strategy of the organization, which mostly has the strategy of encouraging internal promotions and transfers.

MIXED RECRUITMENT

Mixed recruitment is the combination of external and internal procedures. It is made in a way that can reconcile the interest in filling the vacancy and the appreciation of the company's talents. It can be done in three ways:

PREVALENCE OF INTERNAL MODEL

Attempted internal recruitment and, only in the face of failure, is the search for professionals from outside the organization.

PREVALENCE OF EXTERNAL MODEL

Initial attempt to find the employee in the market and, only on failure, the vacancy is open to employees of the company.

CONCOMITANT MODEL

External and internal recruitment occurring simultaneously. With this, it is possible to generate an equal competition between the candidates.

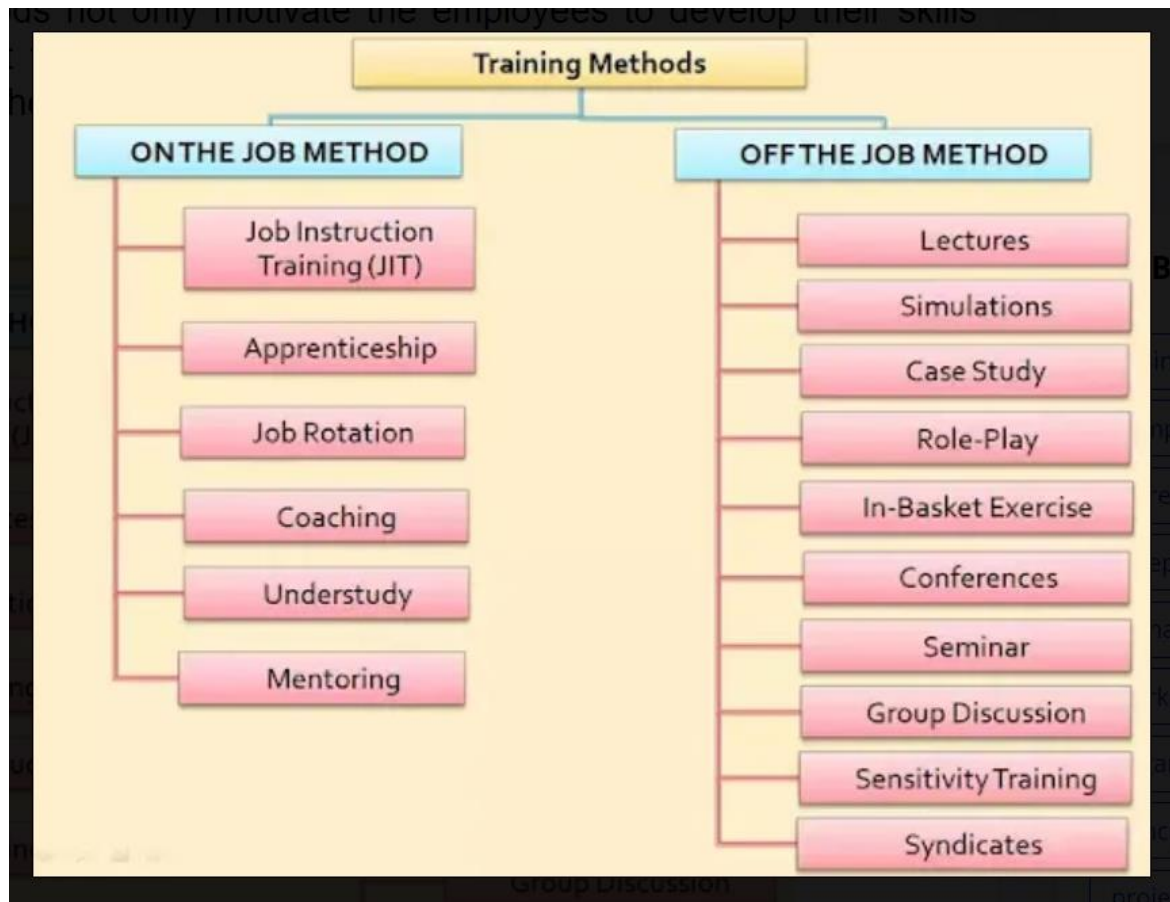
ONLINE RECRUITMENT

In online recruitment and selection, it is possible to use the internet in favor of HR. This makes external or internal recruitment more efficient. But in order to do so, it is necessary to have a specialized platform to reach a larger number of candidates and automate the processes.

Training Methods

Methods of Training: The organisation makes a lot of investment every year in various training and development programmes for their employees. The main purpose of the organisation for doing so is to augment the productivity of the company by enhancing the skills and knowledge of the employees. At one point or another, the need for training arises, as the possibility of getting the most eligible and trained person every time is very less.

Thus, to make the employees skilful, training is provided to them by using various training methods. These training methods not only motivate the employees to develop their skills but also prepare them to meet the upcoming organisational demands. Thus, companies adopt various methods to train their employees. Some of them are as follows:



ON THE JOB TRAINING METHODS

On the job training methods are based on the concept of learning by doing. In this method, trainees are provided with real job settings to do their jobs. In some situations, they are given sole responsibility to handle the issues on their own and this is how they learn by doing their task. Also, the new employees

gain knowledge of what is to be done from the existing employees and improve their skills under the guidance of experienced ones. This type of training method has become very popular and is used by most corporations.

Some of the crucial ON THE JOB training methods are discussed below:

1) Job Instruction Training (JIT):

Under this training process, trainees are given instructions systematically one by one. These instructions are given by experienced trainers who are well-known for the techniques and procedures to be used and the functions to be performed during the job. In this training method, the learners first observe their instructors while performing the task and then follow them by performing the task on their own. This helps the trainers to easily point out the faults committed by the trainees and rectify them as soon as possible.

2) Apprenticeship:

It follows the principle of "earning while learning". In this method, an expert and the experienced person gives his knowledge and skills to the trainee who desires to learn that skill. Once the trainee has completed an apprenticeship programme, the trainee can apply for a permanent job if there is any.

Related Article: Types of training

3) Job Rotation:

It is that process in which the employees are allowed to perform the functions of other departments in the organisation. When the employees are rotated from one department to another department or from one division to another division, they gain new knowledge and experience about the different jobs performed by different people in the organisation.

Job rotation takes place either in the form of promotions in which the employees are promoted from lower level to higher level or in the form of lateral transfers, in which only the job responsibility changes, but not the position of the employee. Thus, this training method is the best way to transform an employee into an expert.

4) Coaching:

The guidance given by the superiors of the organisation to their subordinates is called coaching. Besides being an unofficial and unplanned training method, it improves the bonding between the employees and their superiors.

The senior manager acts as a coach or instructor and guides the employees on how to perform the task and how the mistakes can be rectified. Later, they also evaluate the performance of these employees.

Related Article: [Training Needs Assessment](#)

5) Understudy:

It is the method of preparing the trainees to perform the responsibilities of their trainer or to occupy the position of their senior in future. In this method, when the superior or manager is about to get separated from the organisation due to the reasons of transfers, resignation, retirement etc., his position is allotted to that employee who has received training under him. This method is different from coaching in the sense that the manager can select employees from his department for understudy.

6) Mentoring:

In this method, training is given by a specialised and experienced person. In organisations, mentoring is usually done by senior employees where they try to enhance the skills of junior employees. Many organisations use mentoring as a nurturing tool that fosters the understanding and proficiency of their employees.

OFF THE JOB TRAINING METHODS

Unlike on the job training methods, off the job training methods are not based on the concept of learning by doing but follow the rule of learning by gaining knowledge. Under this method, the trainees are called upon in a classroom which may be situated inside the company or some outside place such as institutes or centres to provide the training.

Because of the outside location, trainees can learn freely without the stress of job work. The main focus of this guidance is to improve the knowledge of the new employees.

Some of the well-known off the job training methods are as follows:

1) Lectures:

When there is a requirement of imparting technical knowledge to new employees; the lecture method proves to be the best way to clear the notion, ideas, and hypothesis to the trainee. It is a one-way communication method in which the mentor collects the entire relevant data for the trainees and conveys a lecture using various teaching aids such as models, chart papers, visual aids, audio aids, etc. Thus, it is the simplest method of providing knowledge to the trainees.

2) Simulations:

This training method depicts a real-life situation of the job that may have happened in the organisation in the past such as damage to any valuable thing, any serious enquiry that may have adversely affected the company, or any mistake that had cost the company a lot, etc. Several realistic examples can be shown to the trainees to prepare them to handle the situations accordingly.

By this, the organisation prepares the trainees well in advance about what may happen on the job and how they have to deal with these types of situations. This method is used in those industries where on the job training can be expensive or destructive such as, in the aeronautical industry.

3) Case Study:

Under this method, the real business cases are framed and they are provided to trainees. Trainees have to discuss it and give their ideas of how they would have tackled that situation. This method is called the case study method and is one of the very common ways of imparting knowledge based on actual business situations.

4) Role-Play:

In this method, trainees are provided with an imaginary or real problem that is generally concerned with the organisation. They are asked to assume the identity of a particular person and behave as if they are in that particular situation. To enhance their managerial skills, employees can make use of various visual aids and tips given by their mentors while executing their performance.

5) In-Basket Exercise:

In this method, the trainee is given all the relevant things like letters, reports, records, etc. that are needed by managers. The trainee is given a specific situation that managers confront regularly. He is asked to assess the situation, prioritise things, justify his reasons and give the final decision on the issues raised during the exercise.

The exercise gives the manager a snapshot of the learner's ability to perform executive functions and roles in the job. The whole exercise is video-recorded and the concerned candidates are tested on the grounds of the proposed set of skills and abilities such as problem-solving ability, time management, etc.

6) Conferences:

A structured method of communicating thoughts to a large number of audiences who are attending the event is called a conference. Experts from specific fields come together to share their views on a common topic and also obtain answers to their questions if they have any.

7) Seminar:

Another word for 'Seminar' is "Seed Plot" which means it is a base ground for gaining knowledge. These are conducted by experienced and expert people who not only prepare the topic of discussion and

deliver it in front of learners but also help them to share their ideas and explore their views on the topic of discussion. Since it is focused on any particular topic, learners can understand things more clearly and respond effectively.

8) Group Discussion:

It is one of the very common training methods adopted by numerous organisations. Under this method, a topic is given to the group of trainees and they are asked to actively participate in it and give their outlook on the issue. The discussion topic is given on the spot and thus, no time is given to the trainees to prepare the topic.

This method not only helps in solving the problem related to an organisation but also creates a higher rate of interest and enthusiasm among the trainees as they can share good experiences and gain new ideas and knowledge about the subject.

9) Sensitivity Training:

Sensitivity training, as by name is very clear that this training is related to emotions and sentiments. It is also called T-group training or laboratory training. The assessment is based on the behaviour of one for the other. This training is carried out to make employees get aware of and respect the feelings and emotions of other co-trainees.

10) Syndicates:

The syndicate training method has proved to be very useful for training higher management. In this training method, the employees form a group and get united to execute any particular function. This method includes numerous groups who work altogether to achieve the organisational training goals.

What is a Quality Circle? Quality Circle definition

- **Quality Circle** is a voluntary group of 4 to 6 members.
- Members are usually from one section or department.
- One senior member acts as a facilitator
- Identify a problem in the work area, meet and discuss the problem regularly, ideally once a week.
- Identify and implement solutions in a standardized methodology.

Quality Circle Steps

1. Defining the Problem
2. Analyzing the Problem
3. Identifying the Cause
4. Finding out the Root Cause
5. Data Analysis on Root Cause
6. Developing Solution
7. Foreseeing Possible Resistance
8. Trail, Implement and Checking Performance
9. Regular Implementation
10. Follow – up / Review

Characteristics of Effective Quality Circles:

1. The atmosphere should be informal, comfortable and relaxed. The members should feel involved and interested.
2. Everyone should participate.
3. The objectives should be clear to the members.
4. The members should listen to each other.
5. The group should feel comfortable even when there are disagreements.
6. The decisions should generally be taken by a kind of consensus and voting should be minimum.
7. When an action is required to be taken, clear assignments should be made and accepted by all the members.
8. The leader should not dominate the group. The main idea should not be as to who controls but how to get the job done.
9. Until a final solution is found and results are attained feedback is necessary.

Objectives of Quality Circles:

Some of the broad objectives of the Quality Circle are:

- (i) To improve quality, productivity, safety and cost reduction.
- (ii) To give chance to the employees to use their wisdom and creativity.
- (iii) To encourage team spirit, cohesive culture among different levels and sections of the employees.
- (iv) To promote self and mutual development including leadership quality,
- (v) To fulfill the self-esteem and motivational needs of employees.
- (vi) To improve the quality of work-life of employees.

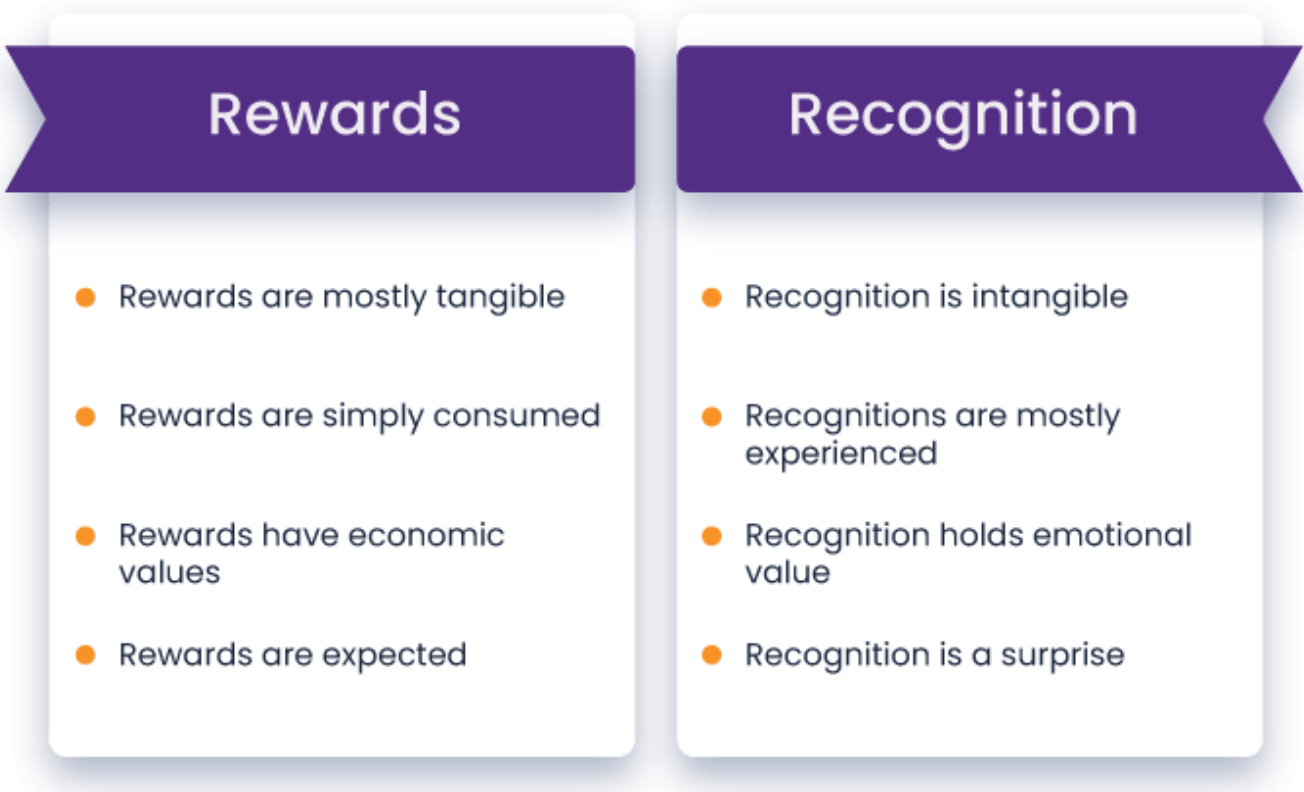
Implementation of Quality Circle activity

Introduction of Quality Circle activity must be preceded by implementation of Total Quality Control (TQC). This will help in developing management attitudes and practices oriented towards quality of processes and creating a culture conducive to defect free operations. Creation of a 'Flexible workforce' and implementation of Quality Circle activity can become complementary activities. Once a suitable atmosphere is created within the organization, following steps can be taken for implementation of Quality Circle activity.

- Discussions between different layers of organizational structure viz Top Management — Departmental Heads, Departmental Heads — Sectional heads, Sectional Heads — Supervisors, Supervisors — Operators about the concept of Quality Circle and its relevance to the organization.
- Training programs for different levels to explain the basics of Quality Circles and the role each level is expected to play in the activity.
- Gathering the feedback from participants on their views and inhibitions.
- Clearing the doubts in everybody's minds and make them receptive to the concept.
- Form a Steering Committee to give overall direction to the effort.
- Select a coordinator and entrust him with the job of working out a methodology, which is suitable for the organization for starting the activity.
- Select the departments where the pilot Quality Circles can be started.
- Select the Facilitator and Leaders and train them to play their role effectively.
- Motivate the members to join voluntarily and train them for their role.
- Start the meetings of pilot Circles and closely follow their work.
- Arrange for the Management presentations for the pilot Quality Circles and give wide publicity for their achievements.
- Extend the activity to few more departments.
- Keep on encouraging areas where the activity is not started by showing them the achievements of the working Quality Circles in other areas and the benefits and recognition they have received.

Rewards And Recognition

Rewards and Recognition is a system where people are acknowledged for their performance in intrinsic or extrinsic ways. Recognition & Reward is present in a work environment where there is appropriate acknowledgement and appreciation of employees' efforts in a fair and timely manner. This includes appropriate and regular financial compensation, as well as employee or team celebrations, recognition of years served, and/or milestones reached.



the different types of rewards and recognition?

The different types of rewards are -

1. Bonuses
2. Variable Pay
3. Stock Options
4. Written/Verbal praise

Recognition on the other hand can take a variety of forms. Structured programs can include regular recognition events such as banquets or breakfasts, employee of the month or year recognition, or an annual report or yearbook which features the accomplishments of employee. A job well done can also be recognized by providing additional support or empowering the employee in ways such as greater options of assignments to choose from, increased authority, or naming the employee as an internal consultant to other staff. A point to be noted is that the recognition itself may have a monetary value (such as a luncheon, gift certificates, or plaques), money usually is not given to recognize performance.

recognition is important in the workplace?

Recognition in the workplace is important as it leads to -

Increase in productivity

Rewarding and recognizing tends to increase employee productivity in the workplace. It makes them go the extra mile. Engagement at work stimulates a spirit of teamwork and acts as a catalyst for high performance. It is important to make sure that the high performers are rewarded and recognized timely.

Stimulating development and career progression of employees

Employees tend to do more when they are recognized and rewarded for good work. It encourages development and career growth since it puts the employee in the position to do more and elevate their work performance. It gives employees morale to do more and exceed the expectations the company has from them.

A sense of satisfaction and morale

Reward and recognition cultivates a positive relationship between employers and employees. The employer will benefit from an empowered employee delivering good results. On the other hand, a recognized and rewarded employee will become confident and satisfied with their work. Enhancing employee morale can contribute to lowering the turnover rate too.

A stronger employer brand

Employees talk and share experiences with those of other companies. A company that recognizes and rewards employees builds a positive brand when its employees talk positively about it. Organically, the company becomes recognized for its best HR practice and this can impact the way it works with external stakeholders. The company that recognizes and rewards its employees will not only be known for its productivity but also for its good leadership practice and people management skills.

implement a reward system?

To successfully implement a reward system, the steps listed below should be followed -

Clarify Your Vision

Before you start implementing reward programs, you must be clear about what they involve - Goals, Benefits, Cost.

Build A Committee

A dedicated set of people should be appointed who will be responsible for the implementation, managing, and establishment of reward programs.

Define Clear Characteristics

The next step before executing reward programs is to understand the characteristics that should act as the building block of the system -

- The recognition should be timely. Recognition delayed is recognition denied. Delaying to appreciate top performers only results in lessening of the impact of the recognition when it is eventually given.
- Recognition, just like motivation, should be frequent. It is only valid when handed out regularly.
- Recognition is more meaningful when distinct accomplishments get celebrated. Employees should know that a certain amount or kind of performance will bring in praise.

Define Clear Criteria

The key to meaningful recognition in the workplace is to set the criteria for getting rewarded and appreciated. Review a series of criteria such as below to find out what suits you best:

- What type of behaviors should be rewarded?
- How should the said behaviors be rewarded?
- How often should you recognize your employees?

Ensure Successful Implementation

Once laid out, ensure the rewards program is being implemented as per the plan.

differences between incentive, benefit, rewards, and recognition?

An incentive is something which encourages an employee to contribute towards benefit of the organisation.

Benefits are non wage compensation paid to the employees while some are mandated by law and some differ from firm to firm.

Rewards are monetary or non monetary compensation apart from their salary which is given to the employees on account of their performance to motivate them.

Recognition is the process of honoring employees for his/her level of service and is meant to encourage repeat actions, through reinforcing the behavior the organisation would like to see repeated.

Here's our guide on [**how to Design The Perfect Employee Rewards Program**](#)

Customer Focus

An approach called “customer focus” centers business decisions around customers’ needs. Businesses prioritize serving their customers instead of maximising profits based on how those choices affect customers. This long-term approach fosters trust and loyalty.

It is a mindset, philosophy, or a strategy to align your business processes with customer’s goals and expectations. When you implement this strategy in your company, all your business units work towards the same goal – customer success. Since your success is dependent on the success of your customers, it is a winning combination.

Why is Customer Focus Important?

The obvious benefit of a customer focus approach is greater customer satisfaction. But how it enhances your business growth is what we are going to explore below.

Greater Retention

Customer retention is one of the primary goals of any SaaS organization. When you want to retain your customers for the long run, you naturally want to understand them more completely. To do so, you have to be nearer to your customers than any of your competitors. When you serve your customers with a focused approach, they tend to stay with you for longer.

More Profit

In the initial stage of implementation of this strategy, you would experiment to find out what works best. This means spending more time, resources and money. But after a certain point, you develop a knack that starts giving you better outcomes.

Your operational costs tend to decrease as you get more specialized in serving your customers. This starts fetching more profit for your business for two reasons:

It is 5x cheaper to retain an existing customer than to acquire a new one.

Existing customers can start generating more business through upgrades.

Brand Advocacy

When customer loyalty is leveraged, brand advocacy can be obtained. Loyal and satisfied customers tend to share their positive experiences with your brand with others. This brings more publicity through word-of-mouth marketing which is usually more effective than advertising.

Build a Customer-focused Culture?

There are many ways you can build this culture in your organization. Some are generic, while others are more contextual, which only you can find. Read on to explore the 10 different ways you can choose from to build a customer-focused culture.

Hire the Right Candidates

Building a culture of customer orientation should start with right hiring. During your hiring process, gauge the candidate's customer focus skills. Making this part of your selection criteria not only assesses the candidate's capability but also gives a message to the recruits and hiring managers about the importance of customer experience.

Exposure to Customers

To build a customer focus strategy, you need to facilitate direct interaction of your employees with customers. It is not just the customer facing employees who must regularly interact with the customers. Even the back-office employees should understand customers well by engaging with them contextually in a timely manner. This will infuse the customer-centric culture at all levels.

Connect Employee's Growth to Customer Outcomes

When a manager can measure the impact they are creating in customer outcomes, they get more motivated towards serving them. Employee's growth should be linked to customer outcomes and proper appraisals should happen based on that. For example, sales teams should be incentivized for selecting the right-fit customer that enables longer customer retention.

Build a Great Employee Culture

Employee culture is infectious when it comes to dealing with customers. When your employees have a high satisfaction level and feel good about their job, they can be easily motivated towards creating a

greater customer experience. Customers can also feel the positive impact while interacting with highly motivated employees.

Share Customer Insights Company-wide

Customer insights are essential to gain a deeper understanding of your customer's needs, challenges, and outcomes. While this may sound relevant only for marketing and sales teams, it would be wise to share it across all teams. This way, everyone can access the customer insights and optimize their work according to customer needs.

Build Customer Empathy

Customer empathy is easier said than done in many SaaS organizations. It is important in building a greater understanding of customer pain-points and emotional needs. There cannot be a greater attribute than empathy that helps cementing your relationship with customers.

Employees of a customer focus organization should do a deeper study of customers on different channels like social media, support calls, etc. to better understand them. Through this, they should be able to identify what really clicks with customers.

Use Customer Metrics

Customer satisfaction and loyalty can easily be mistaken if not analyzed through the right metrics. Make sure you use the right metrics to measure your customer health and share it across all teams.

A customer health score through a customer success platform can help you give an overall picture of the health of a customer account. Another key metric is a Net Promoter Score (NPS) that tells you the satisfaction level of your customers with your brand. Likewise, there are many metrics that can help you assess the customer's sentiments and take proper actions towards improving them.

Provide feedback to employees

Customer focus can be improved when the customer service culture fosters employees. Think of it like a chain reaction. Employees need to be customer-focused and have a customer-focused strategy. You need to reward employees who are helping customers in the right direction. To improve customer focus, you need to provide feedback to employees. This will help the employees know what they need

to do to focus on the customer. Customer-focused employees are the biggest asset for any company. Give feedback regularly instead of waiting for an annual session.

Leverage the power of data

Data is everything in today's day and age. To unlock the true potential of data, you need to use technologies such as the internet of things and artificial intelligence. These twin technologies can enhance customer focus. Customer-focused strategy can be improved if adequate attention is paid to data technology and intelligence.

Keep investing in learning

A customer-focused culture and customer-focused strategy requires a strong foundation. It is not an overnight activity. Customer focus can be improved if the foundation is strong. You can build a customer-focused strategy brick by brick if it is solid. You need to implement certain strategies to succeed on this journey of improving customer focus. Improving technical skills will encourage employees to perform better with every opportunity. Customer focus improves company growth, increases loyalty, and ensures that customers are satisfied. If you keep investing in learning and education, you are upskilling for an improved outcome. You can take the help of courses from reputed institutes to instill innovative ideas in employees, learn more, and take their feedback. This will help you develop customer focus skills and create customer-focused interactions. Learning will help offer an advantage over competitors and predict insights to ace disruption.

	Process-Focused	Customer-Focused
Strategy	Leveraging processes for business results	Leaders/employees listen to customers and design products/services that meet or exceed those needs
Culture	Problem solving, process thinking, reducing waste, continuous improvement	Employees put customers ahead of everything else. Engagement is proactive, transparent, responsive, customized and empathetic.
Organisation	By processes, value streams with defined ownership	By customers or market segments
Customer	Internal and external	External

Internal customer

Definition: An internal customer is defined as a customer who works in the organization and does not pay for using the company's product or service. Internal customers are the company's employees or the stakeholders within the company who are interdependent to complete their jobs.

Characteristics of the Internal Customers

1. Close bonded relationship

Every department supports the other, which helps in creating a close bond among the employees. This is different from the relationship with the clients. For example, the company only extends its services and product; thus, there is no personal relationship between the company and the customer. But with the employees, everyone has to work in the same environment, which helps develop a trusting relationship.

2. Frequent interaction

The employees have frequently sought support or service from the relevant department. System breakdown is widespread in a company that is dependent on technology. Hence there is a regular interaction between the respective department.

3. Two-way communication

Internal customer service is a two-way communication as departments help out each other to ensure a smooth workflow. For example, in a hotel, the kitchen and service departments coordinate with each other to give quality service to the customers.

Manage Internal Customers?

Managing internal customers is important for any company to achieve the desired result. A company can manage internal customers in the following ways;

1. Feedback

The company has first to identify where the key customer interaction is taken place for employees. Then the company should track down the start pointing from the endpoint of the employees' experience. This will ensure you know more about where the breakdown occurs.

On those points of breakdown, the company can receive feedback from the employees to solve the problem or issue. For example, if a production team facing a problem due to machinery will get frustrated because their work is not done efficiently. This negatively impacts the overall experience of the whole department. From the necessary feedback, the company can work to solve the issue.

2. Taking Action

The internal communication for the internal customer is a closed-loop. It ensures to help the company to turn the negative interaction or experience into a positive one. It is up to a company to create an appreciative work environment which will result in the employees being more motivated. In such cases, HR plays a big role in the company. A supportive HR will be sought by the employees who are facing any work-related problems. And HR will ensure that it gets resolved at the earliest possible time.

3. Creating Service standard

A company should establish a clear service standard that will give the employees clear instructions on how things are operated. Every department has to their designated work which always comes up with the standard operating procedure. The SOP ensures that everyone in the company knows what to do and feels valued.

4. Acknowledging accomplishment and celebrating success

Employees are motivated if acknowledged for their hard work. This practice in a company will ensure better-desired results and a good working environment. The employees' success should also be celebrated, for example, an employee of the month.

What Is Customer Satisfaction?

Customer satisfaction is a unique characteristic of customer experience. It is different from other customer metrics such as customer loyalty or customer retention. These metrics are one or two steps removed from the immediate experience. Customer loyalty, for example, is how likely a customer is to return after an initial purchase.

What Is Customer Satisfaction?

1.

Customer satisfaction provides us with insight into things that need improvement or other ways we can improve our services or product to better service our customers.

2.

Customer satisfaction is very important for any business to develop a good reputation within their customer base.

Customer retention has to do with bringing back customers who have already made purchases. But these metrics don't necessarily provide insight into your present customer experience.

Customer satisfaction, on the other hand, is a direct measurement of the middle step in the process: how customers perceive their experiences.

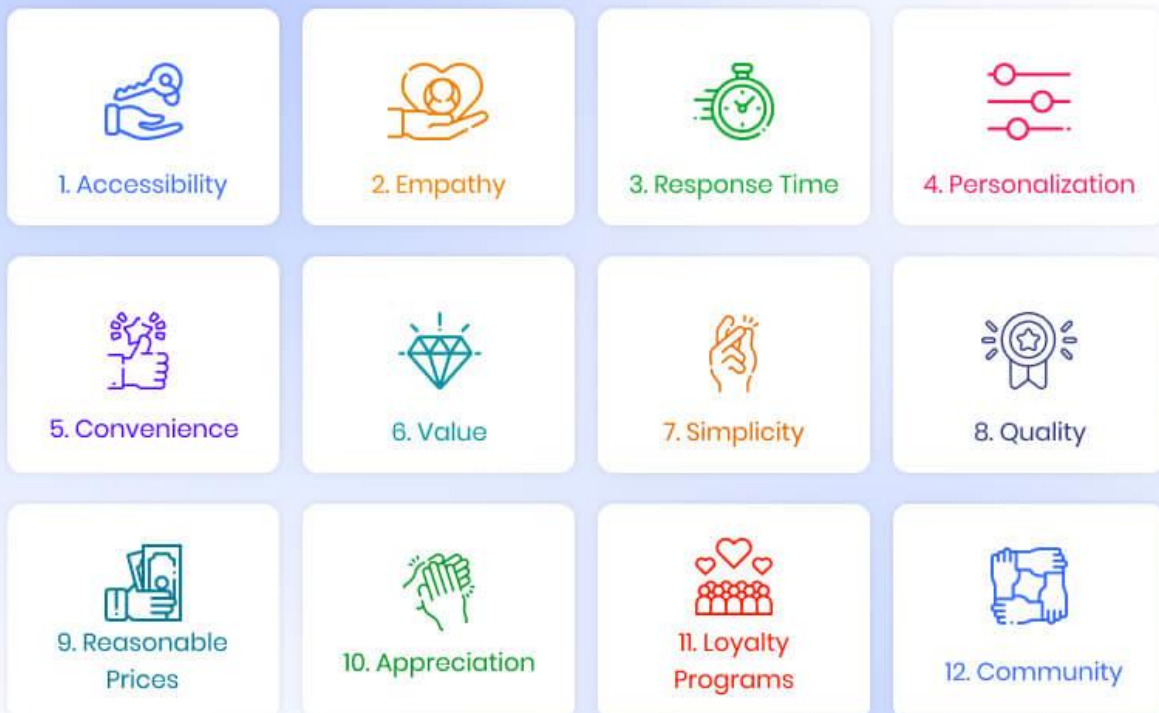
Impacts on customer satisfaction:

- Customer satisfaction provides us with insight into things that need improvement or other ways we can improve our services or product to better service our customers.
- Customer satisfaction is very important for any business to develop a good reputation within their customer base.

Factors Affecting Customer Satisfaction

The customer, in the end, is not just evaluating a purchase, but also their relationship with the company and its people. If a customer has a good experience, they can become loyal fans of your company.

12 Factors Affecting Customer Satisfaction



However, if a customer doesn't have a good experience, they can easily turn into a detractor and try to warn other people against doing business with you.

1. Accessibility

The ability to interact with a product or service and use it to meet the needs of the people – has never been more vital to meeting customers' needs and expectations than it is today.

Seems obvious, but in the world of business and commerce, making products and services accessible to everyone means making them mobile-first, responsive, and smoothly functional on multiple devices.

Besides, it is not going to be something that you add later on to your app or website, it should be utilized at the very beginning of the development process and integrated throughout the design of your app or website. So that customers can access your products and services conveniently.

Why is it important?

- It will give your customers an optimum experience and will make them feel at home with your app.
- A business that offers convenient methods of communication such as **live chat**, social media, and email will be seen as more accessible by customers. Therefore, they will feel appreciated.

2. Empathy

When customers are satisfied with their experience buying a product or service, they become loyal and are more likely to buy from you again. Empathy is an emotion felt when someone is understood and shows consideration for others' feelings.

Customers have a sort of sixth sense when it comes to their service with companies. It's not hard to guess which approach leads to happier customers and more satisfied businesses.

Why it is important?

- An average of 84% of shoppers are more likely to make a purchase when they feel empathized with.

3. Response Time

For business owners, the response time for customer care inquiries is crucial. No matter what type of business you run, your customers are valuable and you want to make sure they are happy.

The faster you **respond to a customer's complaint**, inquiry or request, the better it is for your customer and your business.

An obvious example of this is in sales. You could have the perfect product at the right price, but if you can't provide a speedy response to your customer, they will likely go to one of your competitors who can. If a customer needs quick help with an issue or wants a fast response, they are going to reach out to a business that responds quickly.

Why it is important?

- Undeliverable messages are not a good way of communication and you shouldn't encourage them.
- If your customers contact you via channels that aren't working properly, or that aren't monitored properly, they'll end up frustrated by having their emails or chat messages go unanswered or by having to communicate with different representatives as each one "hands-off" them to someone else.

4. Personalization

It is a fact that businesses with ultra-high satisfaction scores have a competitive edge. Satisfied customers are more likely to come back and are more likely to refer to a business.

Personalized experience with customers is one of the keys to establishing a **strong emotional connection** with them.

However, if you would like to ensure that your customers have this experience in your e-commerce shop, it is important to change the parameters of their interaction. More specifically, it is necessary to adapt page content and format, as well as add some elements of personalization as possible. There is no doubt that personalization is one of the key factors affecting customer satisfaction.

Why it is important?

- Customers want to be conscious that they are treated individually. Maybe not all customers know what product they want to buy in your store or if they are interested in buying it at all.
- Customers are looking for some special offers and discounts that can be offered only to a particular group of these people.

5. Convenience

One way to provide convenient customer service is by offering a virtual assistant or **chatbot** to assist them in the things they want and need. You might be wondering how such an assistant can help.

Marketing, especially when it comes to building your company or business website these days can seem quite complex. And websites with multiple services and products can even seem overwhelming.

A virtual assistant, on the other hand, has the ability to make what typically can be a confusing process much less complicated.

Why it is important?

- Happy customers will be more likely to pay more for a product and also recommend it to other people about their positive experience.
- Convenience is giving the chance for the customers to use your services as often as they wish, knowing that no matter what, everything will be taken care of.

6. Value

The value of the customer is the basic principle of any business, whether big or small. **Customer satisfaction is a key factor** in recognizing the critical success of any business.

The first consideration for a business should be its customer satisfaction as it will provide the basis for long-lasting and desirable relationships with customers.

Why it is important?

- It will help you to create and maintain a healthy relationship with your customers so that they remain loyal and satisfied with your services.

- 68% of customers may leave your business if they feel that their complaints go unheard.
- It will keep your customers happy, as they will be advocates for your brand and they'll share their positive experiences with their peers on social media.

7. Simplicity

Simplicity is one of the most important aspects of a business. The more simple a business is the easier it will be to understand, which will, in turn, lead to increased customer satisfaction.

If your product is hard to use, customers won't use it. They will simply go buy a competitor's product instead. Your product must be simple.

8. Quality

Quality is one of the most important aspects of the product and it is simply because a satisfied customer is the one to whom you can sell again.

A good product makes your customers come back to you but, unfortunately, many businessmen do not pay attention to this, but your product must be as good as possible.

In fact, top businesses often use a customer satisfaction model to find ways to improve product quality and achieve happy customers.

Why it is important?

- It is vital that you understand who the product is intended for and what your customers need, in order to provide them.

9. Reasonable Prices

Reasonable prices are the essence of customer satisfaction in any business. If a business wants to be successful, then it should learn from others and realize that pricing is one of the most important factors if you want to attract customers.

Also, reasonable prices ensure the survival of businesses. Imagine a situation when there is no reasonable pricing for a product or service. So how can you stay in your business?

It is easy to understand that unreasonable price offers are absolutely wrong. Such an offer will not gain market share and will have no real impact on the consumer.

Why it is important?

- By offering goods or services at reasonable prices, you will surely win new customers and improve your business.
- If we buy things that are not good quality or are overpriced, it will result in dissatisfaction.

10. Appreciation

Though some people take it for granted, most customers want to be appreciated for their business. You can **boost your customer satisfaction** with little things, like sending a hand-written thank you card or a note with the order.

If the customer orders something nice, then double the value of the item and send it as a gift. It's these little things that will set you apart from the competition and will show you truly care about your customer.

Why it is important?

- When customers feel appreciated, they will support your brand and continue to return to your business for future purchases.

11. Loyalty Programs

Using a loyalty or **customer reward program** is a great way to increase customer service satisfaction for your business. Loyalty programs are not hard to start and can be used by a variety of business types.

Customers and clients love reward programs because they show that the business owners appreciate and value them enough to offer special perks that those who do not join the program do not receive.

12. Community

Creating a community around your products can be a ground-breaking way to engage your customers with your brands.

Building relationships is important because it establishes trust, loyalty, and recognition. As a business owner, it's important to build that relationship with your customers, your employees, and vendors as well as your family members.

ROLE OF MARKETING FOR CUSTOMER SATISFACTION

In marketing, satisfying customer needs and wants is the easiest way to increase profits and sell more products and services. The definition of desire in marketing is finding what the consumer is longing for and needing. Marketing strategies look to fulfill different needs to get the consumer to buy the product. Often several needs are fulfilled at the same time to build stronger client satisfaction.

There are several consumer needs examples that illustrate the desires that buyers have and the key points marketing strategies should target. They include the following.

A high level of satisfaction delivers many benefits, including:

- Loyalty
- Makes repeat purchase
- Provides referrals
- Less likely to churn
- Cost of acquisition is less
- Ready to buy product at premium prices

Fulfil Consumer Need

Fulfilling the consumer needs starts with understanding what your product does and how it helps people. Taking the time to fully research and understand how you help consumers is the best way to properly target marketing campaigns. Proper targeting generates the best sales results. Consumers fall into what is referred to as the "Awareness Pyramid" with people at the base of the pyramid unaware of their need or your product. As people move up the pyramid, they understand more about how your problem solves the need. The better you can target those at the top of the pyramid, the higher your sales conversions become because your product directly solves what the person wants immediately. For example, a person who doesn't have back pain is at the bottom of the awareness pyramid while someone with a serious injury is at the top and a likely candidate to buy chiropractic services.

Adding Value With Inclusions

Consumers may have more than one need or have a need plus a desire. This is where adding inclusions with the initial sale help to give consumers more bang for their buck. The strength of the sale is solidified with other offerings. Inclusions could be any number of things. For example, a software development company could include free support for a certain duration after the software launch. It's an inclusion that gives the consumer a better final experience while still fulfilling the need of getting the software used.

Optional Pricing Structure

Everyone wants to get the best possible price for anything they buy.

This is human nature. In some cases, lower pricing solves the need of the buyer. But pricing structures can solve a variety of needs even if the actual cost isn't reduced. For example, a client wants a certain software built but they cannot afford to pay the whole amount at once. A payment schedule could solve

the client's budget while solving the need for the software. The software company doesn't need to lower the price of the service.

Ease of Use

Providing convenience and ease of use is a significant solution offered in today's marketing strategies. While having a product that is easy to use is beneficial and helps sell the product, how the order is delivered is a key consideration for many consumers. Including software use manuals or providing tutorial videos can go a long way to solving this problem.

The idea of making the purchase easy for the consumer goes a long way toward generating higher sales.

Build a Relationship

Many customers choose to do business with companies that they feel "know them." Consumers who choose to deal with brick-and-mortar companies often do so because they don't want to feel like a number. These are relationship seekers who want to walk in and conduct business without having to explain everything every time. Online companies should work hard to improve the relationship experience of consumers who want to feel like the company cares about them.

CUSTOMER RETENTION



The customer retention definition in marketing is the process of engaging existing customers to continue buying products or services from your business. It's different from customer acquisition or lead generation because you've already converted the customer at least once.

The best customer retention tactics enable you to form lasting relationships with consumers who will become loyal to your brand. They might even spread the word within their own circles of influence, which can turn them into brand ambassadors.

Importance of Customer Retention

- Increases Revenue
- Reduce Promotional Expenses
- Reduces Competition
- Provides More Referrals
- Valuable Feedback from Customers
- Boost Employee's Confidence
- Enhances Brand Image

commercemates.com

Increases Revenue

Customer retention has a direct influence on increasing the revenue of the business. It enables the business to retain its customers for the long term and develop a sense of loyalty in them.

Customers become loyal to the business and make repetitive purchases with business. They will explore and use different products and services of the company. Loyal customers are even ready to pay premium prices for the company's product. This increases the overall profitability of the business.

Reduce Promotional Expenses

It is one of the important advantages of customer retention process. Customer retention cuts down the advertisement and marketing cost of companies. If companies are able to retain sufficient customers for the long term then it is required to focus less on targeting new customers.

Cost of acquiring new customers is much more than the cost of retaining the present customers. Company should focus on the needs of its present customers to serve them better and make them loyal ones.

Reduces Competition

Competition from rival companies is one of the major challenge faced by every company. Customer retention helps in lowering the competition effect in market on business. Businesses are able to develop more loyal customers through their customer retention programs.

These loyal customers do not switch to other brands easily no matter what offers the rivalries are providing to their customers. Loyal customers are even ready to pay premium prices for brand products. This reduces the overall competition effect on the business.

Provides More Referrals

Customer retention increases the customer's base by providing more and more word of mouth referrals. It develops more number of loyal and happy customers for the business. These customers refer the brand products to their relatives, friends and other ones and explains all features and benefits over others in the market.

People have strong influencing effect on their mind when their known ones recommend them some brand. They are forced to try brand products at least once. This way the company gets more and more referrals from its existing customers.

Valuable Feedback From Customers

It helps the companies in acquiring valuable feedback from its customers. Through customer retention programs business are able to connect with their customers in a better way. They develop a better level of understanding with their customers. Customers also develops a sense of belongingness with them and provide them with valuable suggestion and feedback. They suggest ways how they can improve their services to improve their customer's satisfaction.

Boost Employee’s Confidence

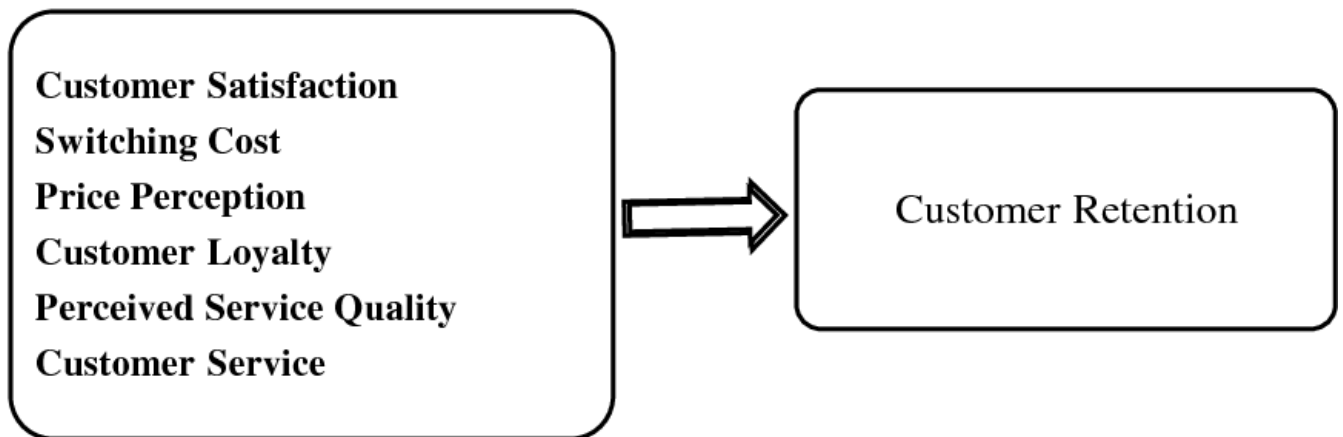
Customer retention will also affect the morale and confidence level of your employees. If customers remain with the business for the long term, employees feel confident that they are serving better and performing well.

On the other hand, if the business is losing its customers then its employees will also get demoralized. They will feel that they lack abilities and skills required thereby bring down their confidence and enthusiasm to work. It will affect the efficiency of the business.

Enhances Brand Image

It enhances the overall business in the market and creates its goodwill. Customer retention helps in serving customers better and holds them for the long term. It focuses on the specific needs of customers and attempts to make them happy and feel satisfied.

IMPACT ON CUSTOMER RETENTION



Steps to Developing a Customer Service Strategy

1. Create a **Customer Service Vision**

The first step in creating a customer service strategy is communicating the customer service **vision** to employees.

Employees need to understand what the vision and organizational goals are for **customer service** and understand their responsibility to help achieve that vision.

Share a compelling vision for customer service and teach employees service skills.

This will result in your employees providing a better customer service experience than an organization that leaves the front-line employees untrained and unprepared for dealing with customer issues.

2. Assess Customer Needs

Organizations can't meet the needs of their customers without understanding what customers want.

Organizations often fail, and waste valuable resources, creating products and services that they **thought** the customer wanted, only to find out it was not what the customer wanted at all.

The trick is to find out what it is the customer wants and put together plans to meet those needs.

3. Hire the Right Employees

Hiring with the customer in mind is another step in an overall strategy for strong customer service.

Screen employees to ensure that they possess the disposition and skill set to help support a strong **customer service** environment.

Skills can be taught but attitude and personality cannot.

4. Set Goals for Customer Service

Once customer needs and expectations are identified and customer satisfaction is measured, it is time to create goals for achieving customer satisfaction.

Employees need to understand what the target is so they can help the organization reach its corporate objectives.

Train on Service Skills

If you hire right, your employees will have a natural ability to serve your customers well.

However, everyone can benefit from practical teaching on the organization's approach to customer service.

6. Hold People Accountable

Employees should have a good understanding of how their service to the customer affects the organization's overall performance and need to be held accountable for achieving customer satisfaction goals.

This is part of a comprehensive **performance management system** and should be part of the cultural norm.

For example, share customer satisfaction

7. Reward and Recognize Good Service

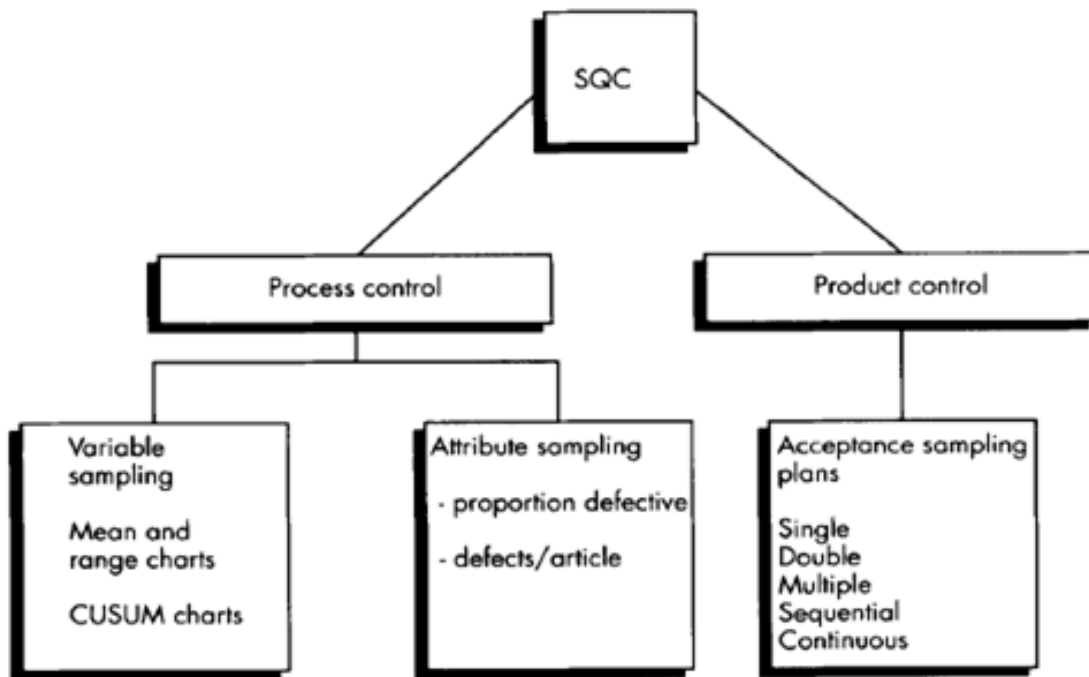
There should be a well-thought-out system for acknowledging and rewarding employees for providing great service.

Employees need positive reinforcement and should be rewarded when they demonstrate the desired behaviors of a strong customer service culture.

Advantages of Statistical Quality Control

One of the excellent scientific tools, SQC has the following advantages;

1. **Cost reduction:** In this method, only a fragmentary output is inspected to ensure the quality of product, therefore probe cost would be reduced greatly.
2. **Huge efficiency:** Inspection of a fractional portion requires lesser time and tedium in comparison to holistic investigation leading to huge escalation in efficiency and production.
3. **Easier to use:** Pitching SQC not only reduces process variability but also makes the process of production-in-control. Even, it is much to apply by an individual without having such extensive specialized guidance.
4. **Authentic anticipation:** SQC is the most preeminent approach that can accurately predict future production. To ensure the degree of perfection and product performance, SQC provides a great predictability.
5. **Prior fault detection:** Any deviation from standard control limits depicts signs of danger in the underlying production process that invites necessary corrective measurement to be taken earlier. SQC is helpful in early detection of faults.



Various types of Statistical Quality Control techniques.

QUALITY SYSTEM

According to the ASQ glossary, a quality management system (QMS, alternatively “quality system”) is a mechanism for managing and continuously improving core processes to “achieve maximum customer satisfaction at the lowest overall cost to the organization”. By bringing together philosophies, standards, methodologies and tools, the QMS helps an organization achieve its quality-related goals.

A quality system is a *specific implementation* of quality philosophies/concepts, standards, methodologies and tools, for the purpose of achieving quality-related goals. When implemented, a quality system will be *unique* to an organization. Its structure, however, may be similar to quality systems in other organizations (for example, if all ISO 9001 clauses are addressed).

COMPONENTS OF A QUALITY SYSTEM

The International Organization for Standardization (ISO) prescribes a minimum standard for the elements of a QMS through ISO 9001:2000. (This part did not change in ISO 9001:2015).

To build an ISO 9001 compliant QMS, you need to: [1]

- **Identify and map processes** (administrative, organizational, operational)
- **Determine how processes are interrelated** (that is, identify and map cross-cutting activities that span organizational boundaries)
- **Plan for operations and control** of these processes, recognizing that the conditions and specifications for control of each of the processes may be different from one another,
- **Plan for dynamically allocating resources** to accommodate the demands of the operations and control of these processes,
- Apply systems thinking and **describe the environment** that your interdependent processes are embedded within,
- Identify mechanisms to **measure, monitor, analyze and continuously improve** the processes in the context of the organization and its environment
- Establish an **Action Plan** for proactively deploying the QMS through the organization, and
- Ensure that **Records** are kept that track compliance to the QMS and changes that are made to the QMS itself.

QUALITY FUNCTION DEPLOYMENT (QFD)

Definition: Quality Function Deployment, or QFD, is a model for product development and production popularized in Japan in the 1960s. The model aids in translating customer needs and expectations into technical requirements by listening to the voice of customer.

QUALITY FUNCTION DEPLOYMENT

Although it might sound like a modern testing methodology, Quality Function Deployment (QFD) has a 50-year track record of putting customer needs first throughout the entire product development process. Focusing consistently on customer desires, QFD ensures these are always considered during both the design process and various quality assurance milestones throughout the entire product lifecycle.

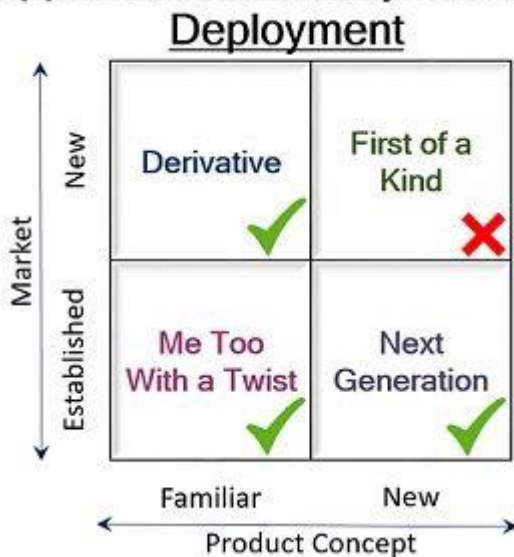
By continuously circling back to the Voice of the Customer, QFD ensures every technical requirement takes the customer into account, using matrix diagrams such as the House of Quality to drive customer value into every stage.

Definition: Quality function deployment is a systematic approach of specifying the customer needs and desires, rating them in terms of priority and designing the quality products and process to serve these requirements, through proper planning.

QFD is a process of bridging the gap between where we stand and what we aim at, by providing target values and competitive analysis.

This tool is widely applied in case of:

Application of Quality Function



- Derivative products which are familiar but launched in a new market

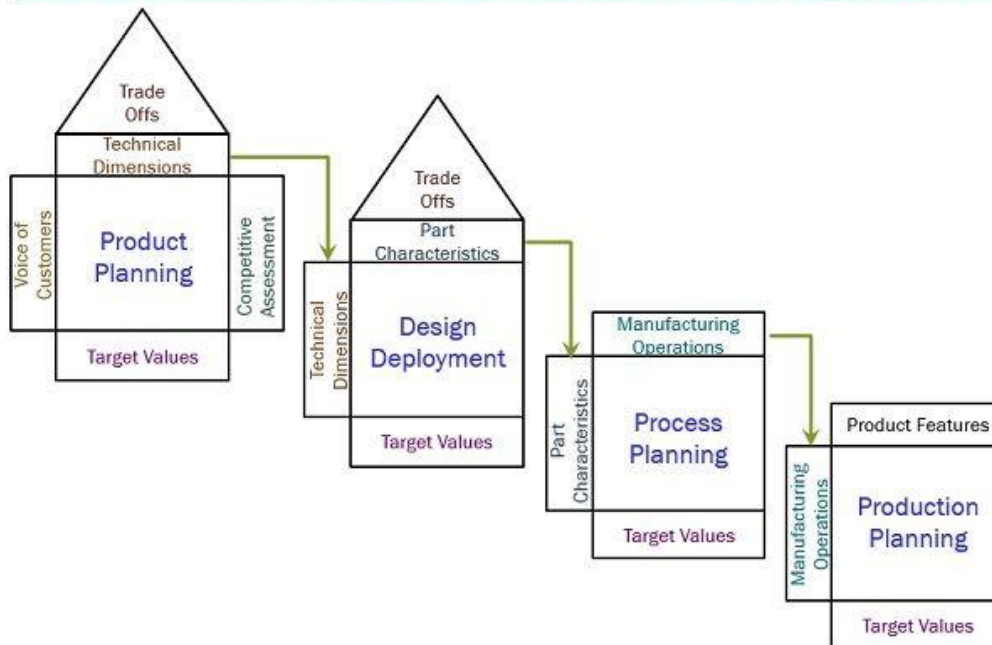
- Products which are casual but have been introduced with a twist;
- Next-generation products which have a new concept and started in an established market.

However, QFD is not applicable in case of products which have a new concept and introduced in a new market (i.e., first of its kind products). This is because of insufficient information or consumer data.

QFD Process

A quality function deployment emphasizes on product and process design. It involves the following four phases:

Four Phases in Quality Function Deployment



Phase 1: Product Planning

The initial step of QFD exercise involves product planning. It is a process of analyzing the customer requirements and comparing these with the product's technical specifications to ensure quality optimization while designing a product. It involves the creation of the house of quality for a particular product.

House of Quality

House of quality is a matrix which is the basis of product planning, and its diagram looks like a house. It is a realistic approach which analyzes the consumer desires and matches it with the technical attributes of a product, to optimally fulfil these requirements by utilizing the resources available with the organization.

This matrix determines the following parameters:



- Customer needs or requirements;
- Product design to suit these needs and wants;
- The priority of each item and its importance while designing a product and process;
- Competitive assessment and analysis of each element;
- Establishing benchmarks and target values for each component.

The above diagram gives an overview of the different sections of a house of quality matrix.

Phase 2: Design Deployment

At this stage, the product design is developed by identifying the suitable assemblies or systems, sub-systems and components.

Following are the various levels analyzed at this phase:

- **System Level:** It includes the analysis of technical requirements for a product, prioritization of these specifications and their impact over a particular system or assembly.
- **Sub-system Level:** The complex systems are then distributed into sub-systems to list, rank and study the critical components.
- **Component Level:** The characteristics are then figured out in terms of purchased components, thus provides as a source of information to the suppliers.

Phase 3: Process Planning

Now comes the process development stage of QFD. This phase evaluates the correlation between the various processes or steps and the technical and functional specification of the product. It helps to identify the process which meets the part requirements in the best possible manner.

Following functions are performed in this stage:

- Analyze the crucial processes;
- Identify the process flow;
- Find out the need for production equipment;
- Develop the framework for a critical process.

Phase 4: Production Planning

It is the last phase of quality function deployment. At this stage, the product's quality control throughout the production process is determined.

In other words, quality targets are decided during production planning. The various related activities carried out are as follows:

- Examine the crucial technical and process characteristics;
- Identify methods of process control;
- Analysis and testing of the process and associated parameters.

BENEFITS OF QFD

The quality function deployment is the task of design engineers; however, the efforts of all the departments are required to implement it successfully.

Let us now understand the various advantages QFD has in an organization:



Improves Product Quality: QFD is a tool used by the companies engaged in the manufacturing and production of goods or services to continually enhance the quality of their products.

Systematic Information: Designing the house of quality for a particular product enables the organization to arrange the data obtained, in an orderly manner.

Competitive Quality Analysis: It also determines the competitiveness of the firm through quality analysis on the grounds of customer reviews and preference.

Reduces Wastage: QFD directs the efforts of the organization's personnel in the right direction and thus reduces the chances of wastage of time, efforts and resources.

Increases Customer Satisfaction: It ensures better quality products by analyzing consumer preference, thus enhancing the level of customer satisfaction.

Shortens Product Development Cycle: With the help of continual research and improvement of product quality, the product development cycle becomes abridged and leads to the sustainability of the organization in the market.

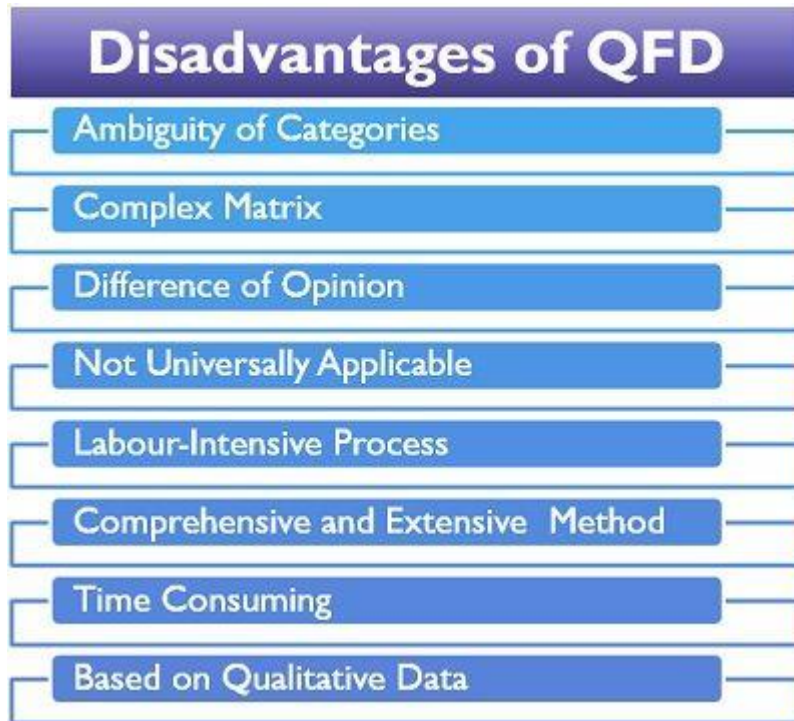
Unanimous Decision: QFD is a team-oriented activity; therefore, the product-related decisions so are taken have the consent of all the members involved in the process.

Decreases Startup Cost: It reduces a startup's expenses tremendously since it is a cost-efficient means of product design and marketing research.

Promotes Team Work: It is a complex process and cannot be performed single-handedly. Thus, it requires the efforts of the whole team, including the personnel from different departments such as marketing, production, research and finance departments.

DISADVANTAGES OF QFD

Though QFD is an essential tool for product design and quality analysis, it has certain drawbacks, which makes it ineffective for some organizations. Following are some of these shortcomings:



The ambiguity of Categories: The customer requirement categories are based on qualitative aspects and therefore appears to be vague and not very clear at times.

Complex Matrix: The house of quality is compiled of a matrix, and in the condition of multiple categories and technical elements, this matrix becomes convoluted and difficult to analyze.

The difference of Opinion: Different team members can have varying opinions, which may lead to arguments and indecisiveness.

Not Universally Applicable: The QFD technique cannot be applied in the case of customized products and valuables like antique items. Also, the products which have a limited number of consumers cannot be analyzed through this tool.

Labour-Intensive Process: It requires team building, i.e., the involvement of various personnel of the organization, which ultimately increases the non-productive time.

Comprehensive and Extensive Method: QFD involves making of a matrix which is elaborated holistically. Compiling all this information in a single house of quality makes the diagram quite lengthy and broad, which may lead to confusion and misunderstanding.

Time Consuming: The process of data collection and its presentation on a house of quality consumes a lot of time and efforts of the personnel.

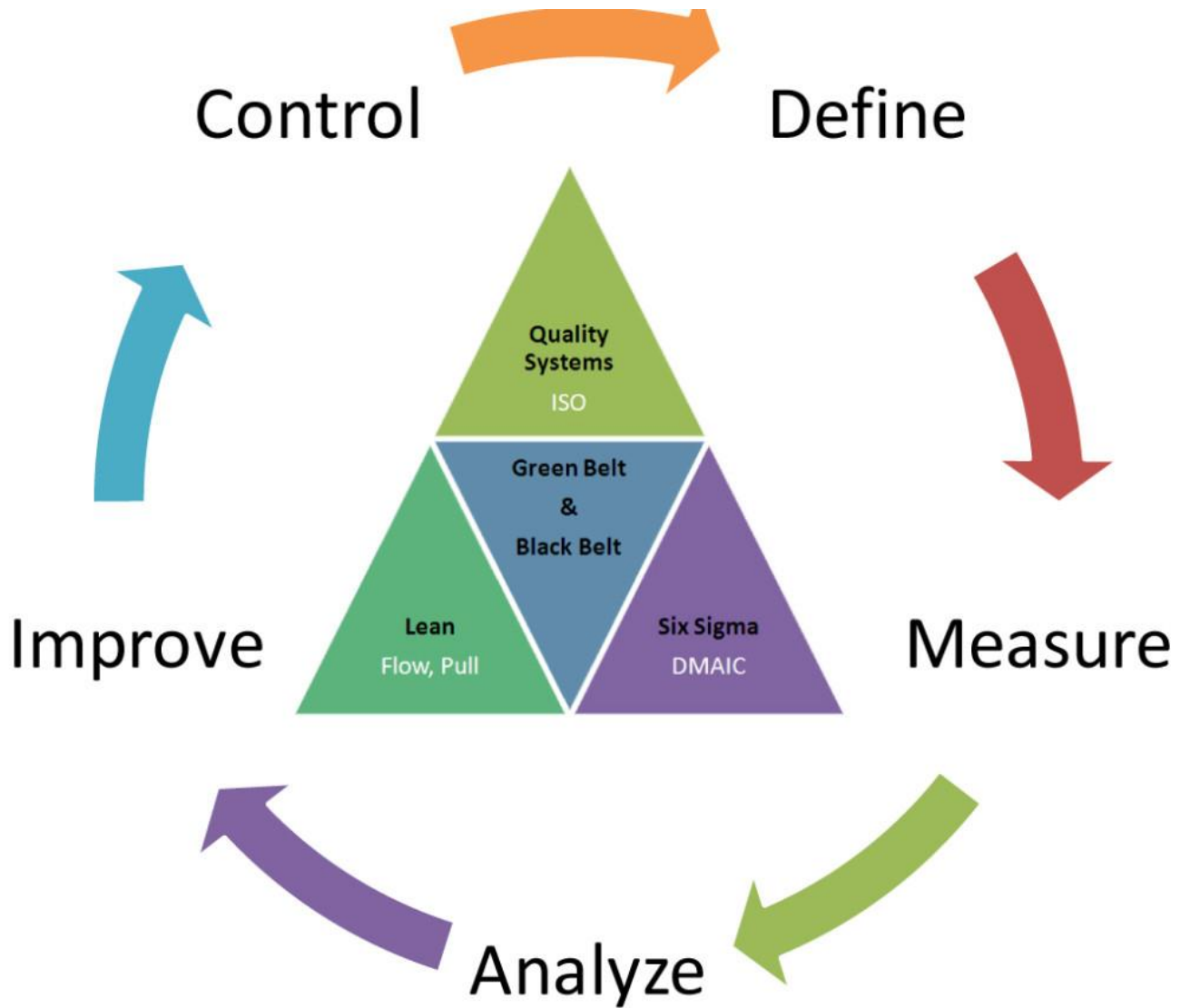
Based on Qualitative Data: The results so obtained cannot be termed as accurate since they are based on the qualitative input rather than quantitative information.

SIX SIGMA

Six Sigma is a process that makes use of statistics and data analysis to analyze and reduce errors or defects. In this process, the purpose is to improve cycle times while reducing manufacturing defects to no more than 3.4 defects per million units or events.

OR,

Six Sigma is a method that offers organizations tools to improve their capabilities in managing their businesses. This increase in performance and decreasing process variation, it is possible to reduce defect rates, improve employee morale, and improve the quality of products or services, which all contribute to a higher level of profitability.



DMAIC has Five Phases



1. **D - Define the Problem.** In the first phase, various problems which need to be addressed to are clearly defined. Feedbacks are taken from customers as to what they feel about a particular product or service. Feedbacks are carefully monitored to understand problem areas and their root causes.
2. **M - Measure and find out the key points of the current process.** Once the problem is identified, employees collect relevant data which would give an insight into current processes.
3. **A - Analyze the data.** The information collected in the second stage is thoroughly verified. The root cause of the defects are carefully studied and investigated as to find out how they are affecting the entire process.
4. **I - Improve the current processes** based on the research and analysis done in the previous stage. Efforts are made to create new projects which would ensure superior quality.
5. **C - Control the processes** so that they do not lead to defects.

DMADV Method

1. **D - Design** strategies and processes which ensure hundred percent customer satisfaction.
2. **M - Measure** and identify parameters that are important for quality.
3. **A - Analyze** and develop high level alternatives to ensure superior quality.
4. **D - Design** details and processes.
5. **V - Verify** various processes and finally implement the same

elements of Six Sigma Process Improvement

- Customers
- Processes

- Employees

The Customers

Customers define quality. They expect performance, reliability, competitive prices, on-time delivery, service, clear and correct transaction processing and more. This means it is important to provide what the customers need to gain customer delight.

The Processes

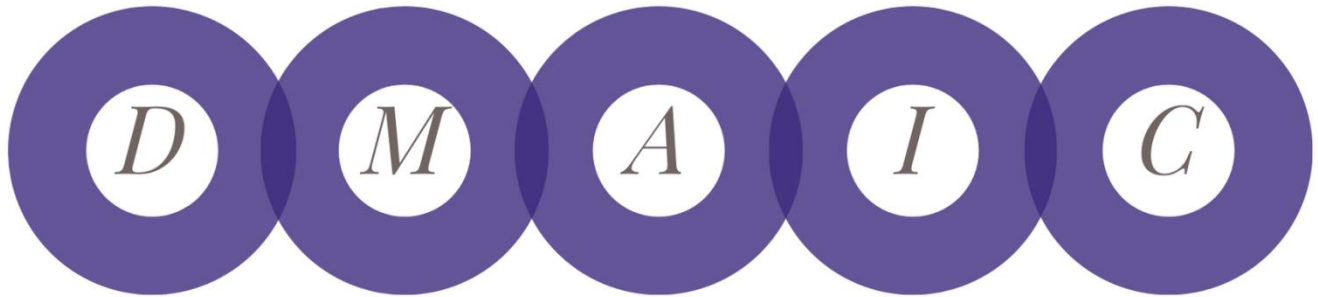
Defining processes as well as defining their metrics and measures is the central aspect of Six Sigma.

In a business, the quality should be looked from the customer's perspective and so we must look at a defined process from the outside-in.

By understanding the transaction lifecycle from the customer's needs and processes, we can discover what they are seeing and feeling. This gives a chance to identify weak areas within a process and then we can improve them.

The Employees

A company must involve all its employees in the Six Sigma program. Company must provide opportunities and incentives for employees to focus their talents and ability to satisfy customers.



Define

- Flow diagram
- Value Stream Map (VSM)
- SIPOC
- Gantt Chart
- Activity network diagram
- Voice of the customer (VOC)
- Critical to quality (CTQ)

Measure

- Charts
- Statistics
- Central limit theorem
- Key Performance Indicators (KPI)
- Defects per million opportunities (DPMO)

Analyze

- ANOVA
- Pareto chart
- Histograms
- 5 why's
- Ishikawa diagram
- Gap analysis
- Linear regression
- Correlation coefficient
- Hypothesis

Improve

- Kaizen
- Kanban
- Design of experiments
- VSM To-be
- Poka-yoke
- PDCA cycle
- Brainstorming

Control

- Control charts
- Control plan
- Response plan
- Total productive maintenance
- Standard Operating Procedures (SOP)
- Dashboards

DMAIC methodology.

While these tools are considered technical in nature, most of them are relatively easy to learn and apply. They are covered in the order they are used in the DMAIC methodology.

Tool #1 - The Critical to Quality (CTQ) Tree

The critical-to-quality tree is used during the design phase of DMAIC. It is used to brainstorm and validate the needs and requirements of the customer of the process, targeted for improvement.

The steps in creating a CTQ tree are as follows –

- Identify the customer of the process targeted for improvement.
- Identify the need of the customer.

- Identify the first level of requirements of the need, that is, some characteristic of the need that determines whether the customer is happy with the need.
- Drill down to more detailed level(s) of the requirement if necessary.

Tool #2 - The Process Map

During the Define phase, the project team creates the first of several process maps. A process map is a picture of the current steps in the process targeted for improvement.

A process map has five major categories of work from the identification of the suppliers of the process, the inputs the suppliers provide, the name of the process, the output of the process, and the customers of the process. Each of these steps is summarized as SIPOC to indicate the steps to the team that must be conducted to complete a process map.

Tool #3 - The Histogram

This tool is used during the Analysis stage of DMAIC. The project team reviews data collected during the Measure stage of DMAIC.

It is often suggested that the data be organized into graphs or charts, which makes it easier to understand, what the data is saying about the process.

Data is of two types - Discrete data (go/no go, fail or pass) and Continuous data (time, hight etc.).

Tool #4 - The Pareto Chart

Histogram is useful for continuous data, same way when the data is discrete, most teams create a Pareto chart. Discrete data is counted data - go/no-go, off/on, yes/no, and defect/no defect type data.

An Italian economist Vilfredo Pareto, in the sixteenth century proved mathematically that 80 percent of the world's wealth was controlled by 20 percent of the population. This 80-20 rule eventually proved applicable in arenas other than economics.

When dealing with discrete data, the project team should create reason codes for why a defect occurs, and count and categorize the data into these reason codes and a pareto chart should be prepared.

„Tool #5 - The Process Summary Worksheet

The goal of a Six Sigma project team is to improve effectiveness and efficiency. Efficiency is measured in terms of cost, time, labor, or value.

The process summary worksheet is a "roll-up" of the sub process map indicating which steps add value in the process and which steps don't add value.

Tool #6 - The Cause-Effect Diagram

The most important tool to assist the project team in determining root causation is the cause-effect diagram. This tool captures all the ideas of the project team relative to what they feel are the root causes behind the current sigma performance and finally help in finding a root cause of the problem.

Tool #7 - The Scatter Diagram

Once ideas have been prioritized after use of the cause-effect diagram, the most important thing the project team does is to validate the remaining ideas with fact and data.

The scatter diagram takes an idea about root causation and tracks corresponding data, in the response the team is trying to improve. The team can validate an idea about root causation through one of the three methods. Using basic data collection, a designed experiment, or through the scatter diagram.

Tool #8 - The Affinity Diagram

An affinity diagram is used to help sort and categorize a large number of ideas into major themes or categories. It is especially useful when the team is ready to brainstorm solutions in the Improve stage of DMAIC. The steps in creating an affinity diagram are –

- Have each team member write one idea per Post-it note and post on a wall randomly.
- As ideas are read off for clarification, sort ideas into similar groups.
- Create a 'header' card for each general category of ideas below it.

Tool #9 - The Run Chart

We have discussed the histogram and Pareto chart. Think of both of these tools as similar to a camera where a snapshot of the process has been taken. But the run chart is similar to a camcorder, recording some process element over time.

Tool #10 - The Control Chart

Similar to a run chart, a control chart uses the data from a run chart to determine the upper and lower control limits. Control limits are the expected limits of variation above and below the average of the data. These limits are mathematically calculated and indicated by dotted lines.

WHAT IS BENCHMARKING

Benchmarking is **a process of measuring the performance of a company's products, services, or processes against those of another business considered to be the best in the industry, aka “best in class.”** The point of benchmarking is to identify internal opportunities for improvement.

Steps involved in benchmarking process



33

Steps involved in benchmarking process

Want to be effective? Avoid considering benchmarking as a one-off exercise!

Benchmarking in business must be an integral part of a continuing enhancement process.

Types of Benchmarking

Here is an overview of the various types of benchmarking with examples:



Types of Benchmarking

1. Strategic Benchmarking

Want to boost the overall performance of your business? Well, this is the kind of benchmarking you should use.

Strategic benchmarking analyzes general approaches and long-term strategies that have facilitated high-performers to be successful.

It entails considering high-level facets such as developing new products or services, core competencies and boosting capabilities for handling the changes in the external setting.

Variations resulting from strategic benchmarking may be challenging to execute and may take longer to materialize.

What is it most applicable for?

Strategic benchmarking is the most suitable for re-aligning business strategies that have become inappropriate.

2. Performance or Competitive Benchmarking

This kind of benchmarking is used when businesses consider their position for performance characteristics of critical services or products.

Benchmarking partners are sought from the same market segment. Performance or competitive benchmarking is often carried out through third parties or trade associations to protect confidentiality.

What is it most applicable for?

It is most relevant and appropriate for evaluating the comparative level of performance in important activities or areas in contrast to others in the same sector and identifying ways of bridging the performance gaps.

3. Functional Benchmarking

Functional benchmarking entail businesses looking to benchmark with partners sought from various areas of activity or business sectors to determine ways of refining similar work processes or functions.

This, in turn, can result in novelty and dramatic improvements.

What is it most appropriate for?

Functional benchmarking is the most suitable for enhancing services or activities for which counterparts are not likely to be existent.

4. Process Benchmarking

Are you focusing on enhancing key operations and processes? Well, process benchmarking is what you need to opt for!

In this kind of benchmarking, the benchmarking partners are drawn from the best practice organizations that carry out similar nature or work or deliver similar services.

Process benchmarking entails creating process maps to assist analysis and comparison. It, however, often results in temporary benefits.

What is it most appropriate for?

Process benchmarking is most suitable for achieving enhancements in key areas or processes to get instant benefits.

5. External Benchmarking

External Benchmarking entails analyzing factors outside the businesses that are recognized as the finest in class. It provides learning opportunities from businesses at the leading edge.

It can, however, consume a significant amount of time and resources to ascertain the comparability of information and data, the development of the comprehensive recommendations, and the authenticity of the findings.

What is it most appropriate for?

When instances of best practices can be found in other companies, and there is a lack of good practice within the organization, the need for external benchmarking arises.

6. Internal Benchmarking

This kind of benchmarking entails benchmarking operations or businesses from the same organization. For instance, one company having business units in various regions or countries.

Internal benchmarking has three main advantages:

- Access to sensitive information and data is easier,
- Standardized information or data is readily available and;

- Typically, fewer resources and less time are needed.

When it comes to internal benchmarking, you will experience fewer barriers to execution as practices may be comparatively easy to transfer within the company.

True novelty may be lacking though, and the likelihood of finding the best practice is higher through external benchmarking.

What is it most appropriate for?

Internal benchmarking is appropriate when several business units of the same company demonstrate good practice, and the management decides to transfer this practice across the organization, swiftly.

7. International Benchmarking

Best experts are identified and examined elsewhere in the world! This is probably because there are very few benchmarking partners within the same region or country to generate reliable results.

What is Cost of Quality (COQ)

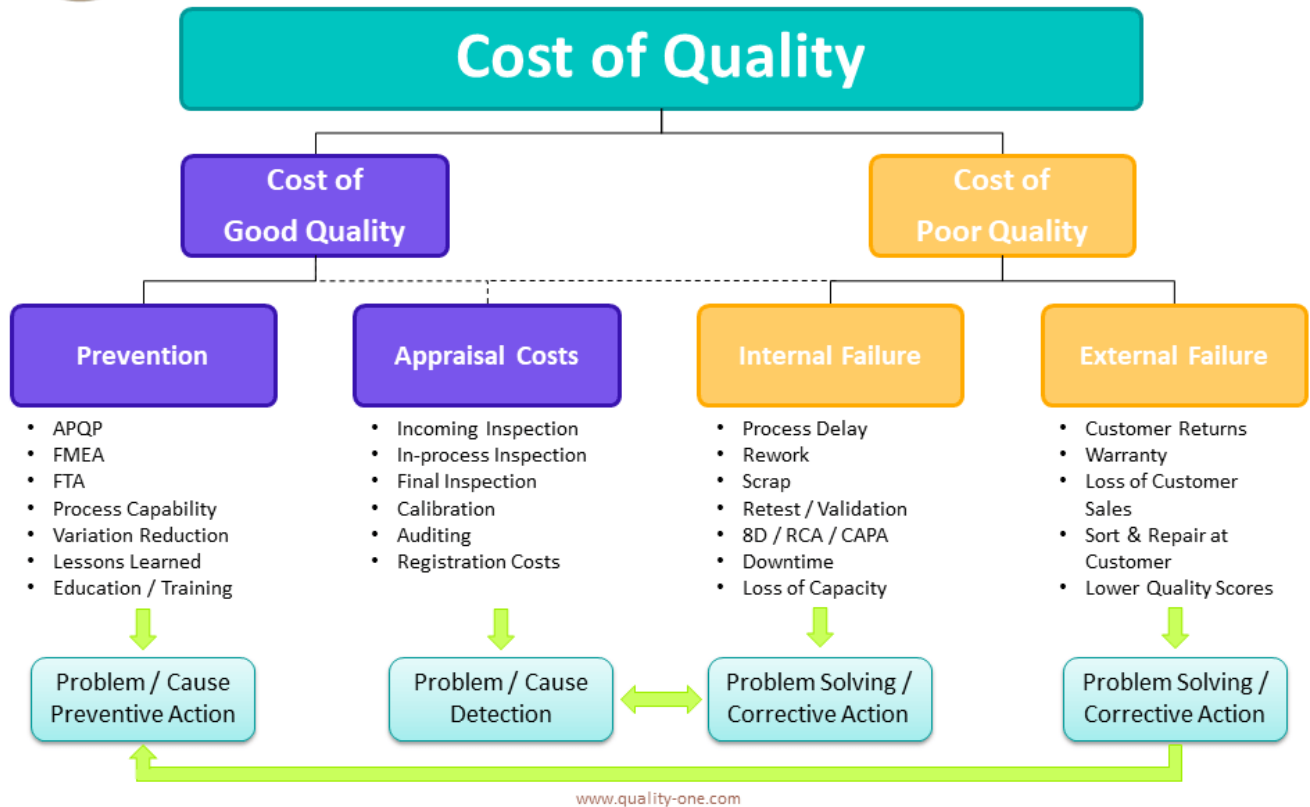
Cost of Quality is a methodology used to define and measure where and what amount of an organization’s resources are being used for prevention activities and maintaining product quality as opposed to the costs resulting from internal and external failures. The Cost of Quality can be represented by the sum of two factors. The Cost of Good Quality and the Cost of Poor Quality equals the Cost of Quality, as represented in the basic equation below:

$$\text{CoQ} = \text{CoGQ} + \text{CoPQ}$$

The Cost of Quality equation looks simple but in reality it is more complex. The Cost of Quality includes all costs associated with the quality of a product from preventive costs intended to reduce or eliminate failures, cost of process controls to maintain quality levels and the costs related to failures both internal and external.



Cost of Quality Example



The Cost of Good Quality (CoGQ)

1. Prevention Costs – costs incurred from activities intended to keep failures to a minimum. These can include, but are not limited to, the following:
 - Establishing Product Specifications
 - Quality Planning
 - New Product Development and Testing
 - Development of a Quality Management System (QMS)
 - Proper Employee Training
2. Appraisal Costs – costs incurred to maintain acceptable product quality levels. Appraisal costs can include, but are not limited to, the following:

- Incoming Material Inspections
- Process Controls
- Check Fixtures
- Quality Audits
- Supplier Assessments

The Cost of Poor Quality (CoPQ)

3. Internal Failures – costs associated with defects found before the product or service reaches the customer. Internal Failures may include, but are not limited to, the following examples:
 - Excessive Scrap
 - Product Re-work
 - Waste due to poorly designed processes
 - Machine breakdown due to improper maintenance
 - Costs associated with failure analysis
4. External Failures – costs associated with defects found after the customer receives the product or service. External Failures may include, but are not limited to, the following examples:
 - Service and Repair Costs
 - Warranty Claims
 - Customer Complaints
 - Product or Material Returns
 - Incorrect Sales Orders
 - Incomplete BOMs
 - Shipping Damage due to Inadequate Packaging

ABC calculation is as follows:

1. Identify all the activities required to create the product.
2. Divide the activities into cost pools, which includes all the individual costs related to an activity—such as manufacturing. Calculate the total overhead of each cost pool.
3. Assign each cost pool activity cost drivers, such as hours or units.
4. Calculate the cost driver rate by dividing the total overhead in each cost pool by the total cost drivers.
5. Divide the total overhead of each cost pool by the total cost drivers to get the cost driver rate.

6. Multiply the cost driver rate by the number of cost drivers.

Advantages Of ABC

The primary advantage of the ABC accounting method is accurately determining the overhead costs required for creating or manufacturing a product. Some other advantages of using ABC are:

1. Provides benefits in industries where other methods do not work

Traditional accounting methods might not work in specific industries, such as the service industry. This is because the service industry has minimal direct costs. Even then, you can use the ABC accounting method since you can directly apply these costs to the type of service the company provides. It can help you improve pricing in the service industry and improve results.

2. Gives accurate data for profit margins

As the ABC accounting method considers the non-manufacturing and indirect costs, it can improve a company's profit margin. When a company has accurate profit margins, it becomes easier to make essential business decisions. It can help reduce production costs, allowing the company to enhance their profit margin while improving its pricing strategies. Using ABC, managers can identify products of no or little value, which helps customers remove products from inventory and allocate resources to more profitable products. It can help in reducing wastage and channelise resources into more productive items.

3. Evaluates the efficiency of productions

Companies can use the ABC accounting method to evaluate the influence of management, efficient processes and the overall cost of different departments. Companies can use the ABC accounting method to assign value to indirect costs, treating them as direct costs. Understanding the indirect cost of each activity makes it easier to make improvements.

4. Provides insight into the distribution cost

Typically, a company uses various channels, such as retail stores, distributors and online stores. For a company, distribution costs are overhead costs and the ABC system breaks these costs based on the

requirement of each channel. When a company has information about the distribution cost of each channel, it becomes easier to choose the most profitable channel.

5. Gives details about facility costs

Using the ABC accounting method, organisations can understand the overhead cost of the production facility. This helps managers and management understand production expenses at different facilities. With information about facility costs, managers can select the right strategies to help companies save money.

6. Helps in creating a budget

The ABC accounting method can help a company identify areas where it spends its money. When a company creates their budget, they try to get as specific as possible about the incoming and outgoing money in the organisation. When managers know about activities on which they might overspend, they can search for new methods for reducing the overall cost.

7. Helps in product pricing

Another benefit of using ABC is ensuring accurate product pricing. Product pricing is a challenging decision to make. Failing to account for all these costs can lower the pricing of your products. As a result, a company might not incur the desired profit margin. ABC method helps managers assign the cost of each activity. Using this data, managers can account for every cost a company incurs to create or manufacture a product.

Disadvantages Of ABC Accounting Method

Although the ABC accounting method is an effective accounting tool, it has certain disadvantages. Some disadvantages of using the ABC accounting method are:

1. Requires lengthy installation time

Installing the ABC accounting method can be challenging and time-consuming, especially for large companies. Instead of calculating the total cost and dividing the cost equally over products, the

accounting team calculates the cost of each product individually. The process of splitting products into various pools is time-consuming.

2. Requires more resources to gather data

Gathering the cost associated with each product is costly and time-consuming. A company might purchase data collection tool to gather data. Often, the company might hire additional employees, affecting the payroll. When a business outsources the process, it might be an additional cost to the business.

3. Provides less accuracy

Typically, no accounting method provides a company with accurate cost details. For instance, the ABC accounting method requires employees to track their time on each activity. Employees might miscalculate or exaggerate the time they spend on each activity. Though ABC costing is more valuable and accurate than traditional costing, it is not completely accurate.

4. Requires additional data

This accounting method cannot retrieve all the required information from the general ledger because the accounting method requires other types of costs. ABC accounting method requires a separate database to retrieve information from several sources, only one of which is the general ledger. Maintaining this extra database requires significant staff for which a company might not have the budget.

5. Makes it challenging for smaller companies to use

Smaller companies have smaller overhead costs, making the ABC accounting method an inefficient process for these companies. These smaller companies use market-based costs for calculating and gathering data that might not align with ABC. Also, manufacturing companies widely use the ABC accounting method, but other industries also leverage its benefits.

6. Collects data only once

When a company uses ABC data collection in the accounting system, they ensure that the information is correct and available for future ABC requirements. Often, ABC is on a project basis, meaning that

professionals collect information only once. As operations and requirements change over time, the information becomes less valuable.

THE SHAININ SYSTEM

The Shainin System™ (SS) is defined as a problem-solving system designed for medium- to high-volume processes where data are cheaply available, statistical methods are widely used, and intervention into the process is difficult. It has been mostly applied in parts and assembly operations facilities.

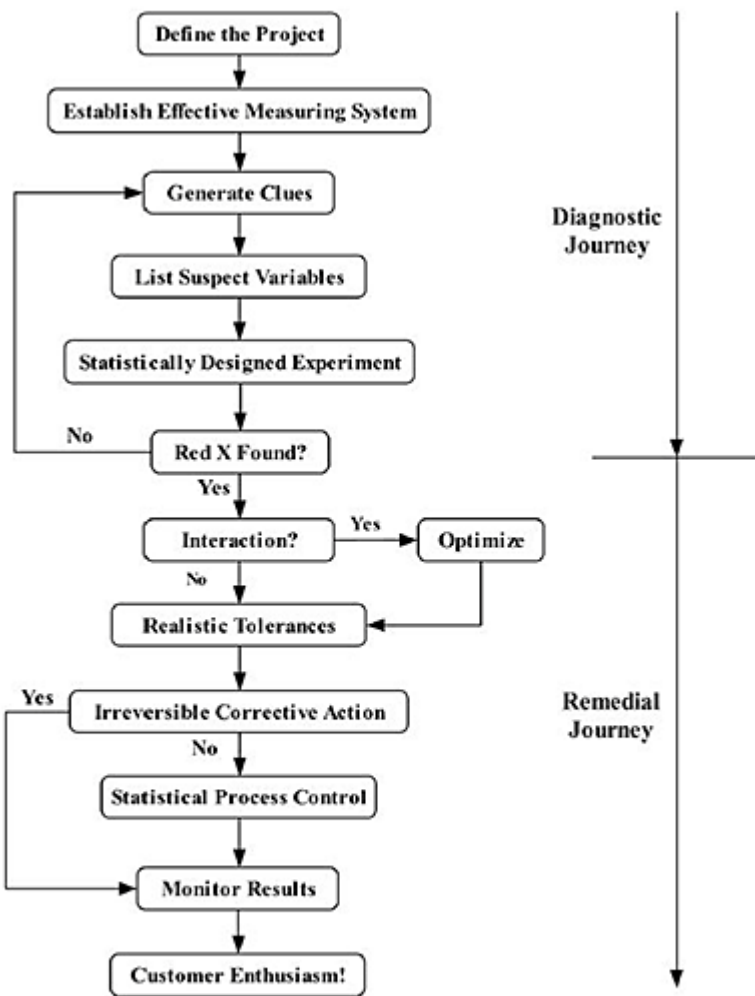


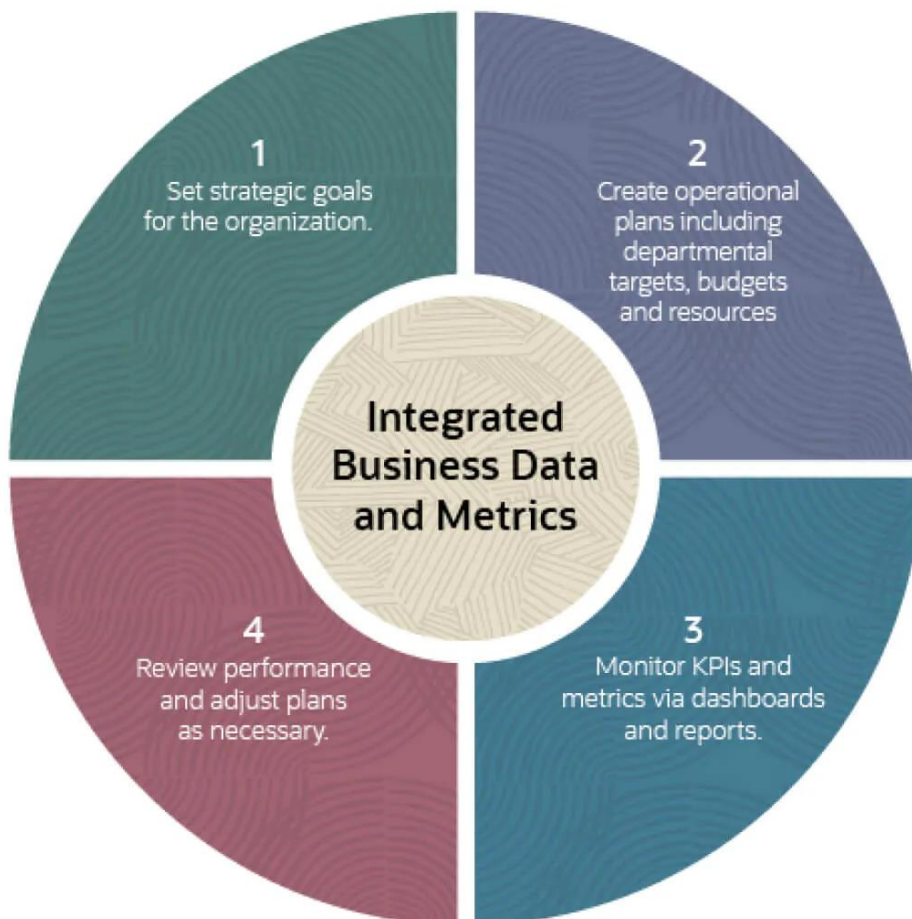
FIGURE 1 The Shainin system™ for quality improvement (from Shainin, 1992).

Business Performance Management (BPM)?

Business performance management refers to a range of methods, metrics and tools for tracking and optimizing business performance. Also known as enterprise performance management (EPM) and corporate performance management (CPM), BPM involves establishing quantifiable business goals and tracking progress toward those goals.

A core concept of BPM is defining and monitoring KPIs and metrics. Keeping tabs on these metrics helps business leaders determine whether an organization’s performance is on track to meet its goals, so the company can investigate trends, identify issues and make strategic adjustments if necessary.

The Business Performance Management Cycle



Business Performance Management Important?

BPM aims to provide organizations with a set of tools for measuring and increasing business success. It helps companies link business goals to specific financial and operating metrics. Tracking these metrics enables businesses to compare their forecasts with their actual performance. BPM helps to align everyone in the company toward common goals, and it also provides early warning signs of potential problems that require adjustments to enable the company to stay on track. Here are some of the most significant benefits:

- **Better alignment:**

The company's goals are translated into specific objectives and metrics for each group within the organization. This helps ensure that all employees are working toward the same goals. Each department, by managing performance based on these business metrics, contributes to the organization's success.

- **Track business health:**

By tracking KPIs, the company can monitor performance across every aspect of the business. Software that supports real-time KPI dashboards and status reports can help departments keep tabs on progress and spot warning signs.

- **Better planning and responsiveness:**

BPM provides companies with tools for more informed decision-making and planning. It helps businesses quickly detect problems and trends and adjust plans accordingly.

- **Improved process efficiency:**

Tracking KPIs can highlight process inefficiencies that the company can target for improvement. For example, an excessively long sales cycle can indicate that the company needs to identify bottlenecks and determine how to streamline its processes.

- **Automation:**

Software that automates the steps of gathering KPIs and presenting them in dashboards and reports reduces the effort and time required to manage the business — and makes it feasible for all employees to continuously track their progress.

Business Performance Management Processes

The BPM cycle consists of four primary processes, with each stage feeding into the next.

1. Develop strategy.

This initial stage consists of identifying the organization's overall goals and developing strategies to reach those goals. This stage may include defining the company's vision, values and strategic objectives in addition to identifying revenue and profitability targets. Strategy development is typically carried out by the organization's CEO and other top managers, based on input from experts across the company.

2. Create operational plans.

Create specific operational plans for achieving the goals laid out in the previous stage. This includes defining specific tactics, initiatives and anticipated results for each department in the business, from production and finance to marketing and HR. The plans also detail the budget and other resources required to reach these goals.

3. Define, monitor and analyze KPIs.

Determine the most important metrics for tracking progress toward each objective. Some KPIs, such as revenue growth, may apply across the entire business, while others are specific to each department. This step also involves determining how to gather data for those KPIs. If the company is using software to monitor business performance, this stage includes building dashboards and reports that display up-to-date status results as well as trends in the KPIs. Analytical tools can be used to delve into trends and issues highlighted by the KPIs to uncover underlying causes.

4. Review and respond.

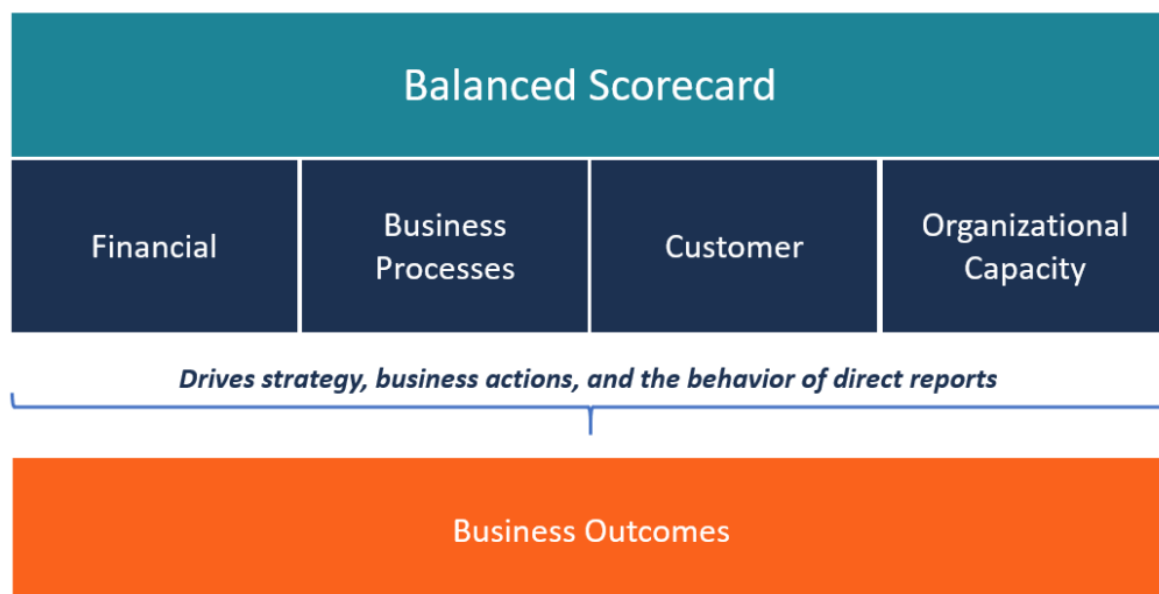
Based on reviewing the analysis of KPIs and underlying data, the company takes action to respond to changing business conditions. This stage may include reviewing how much progress the company has made toward its goals and determining whether strategic or operational changes are needed to achieve success. The results of this stage feed back into the first and second stages of the cycle, enabling the organization to continuously make course corrections by adjusting its goals and plans.

Balanced Scorecard?

A balanced scorecard is a strategic planning framework that companies use to assign priority to their products, projects, and services; communicate about their targets or goals; and plan their routine activities. The scorecard enables companies to monitor and measure the success of their strategies to determine how well they have performed.

What is a Balanced Scorecard?

A balanced scorecard is a strategic planning framework that companies use to assign priority to their products, projects, and services; communicate about their targets or goals; and plan their routine activities. The scorecard enables companies to monitor and measure the success of their strategies to determine how well they have performed.



Four Perspectives of the Balanced Scorecard

The following are the key areas that a balanced scorecard focuses on:

1. Financial perspective

Under the financial perspective, the goal of a company is to ensure that it earns a return on the investments made and manages key risks involved in running the business. The goals can be achieved by satisfying the needs of all players involved with the business, such as the shareholders, customers, and suppliers.

The shareholders are an integral part of the business since they are the providers of capital; they should be happy when the company achieves financial success. They want to be sure that the company is continually generating revenues and that the organization meets goals such as improving profitability and developing new revenue sources. Steps taken to achieve such goals may include introducing new products and services, improving the company's value proposition, and cutting down on the costs of doing business.

2. Customer perspective

The customer perspective monitors how the entity is providing value to its customers and determines the level of customer satisfaction with the company's products or services. Customer satisfaction is an indicator of the company's success. How well a company treats its customers can obviously affect its profitability.

The balanced scorecard considers the company's reputation versus its competitors. How do customers see your company vis-à-vis your competitors? It enables the organization to step out of its comfort zone to view itself from the customer's point of view rather than just from an internal perspective.

Some of the strategies that a company can focus on to improve its reputation among customers include improving product quality, enhancing the customer shopping experience, and adjusting the prices of its main products and services.

3. Internal business processes perspective

A business' internal processes determine how well the entity runs. A balanced scorecard puts into perspective the measures and objectives that can help the business run more effectively. Also, the scorecard helps evaluate the company's products or services and determine whether they conform to the standards that customers desire. A key part of this perspective is aiming to answer the question, "What are we good at?"

The answer to that question can help the company formulate marketing strategies and pursue innovations that lead to the creation of new and improved ways of meeting the needs of customers.

4. Organizational capacity perspective

Organizational capacity is important in optimizing goals and objectives with favorable results. The personnel in the organization's departments are required to demonstrate high performance in terms of leadership, the entity's culture, application of knowledge, and skill sets.

Proper infrastructure is required for the organization to deliver according to the expectations of management. For example, the organization should use the latest technology to automate activities and ensure a smooth flow of activities.

PRODUCT LIFE CYCLE

The term product life cycle refers to the length of time from when a product is introduced to consumers into the market until it's removed from the shelves. This concept is used by management and by marketing professionals as a factor in deciding when it is appropriate to increase advertising, reduce prices, expand to new markets, or redesign packaging. The process of strategizing ways to continuously support and maintain a product is called product life cycle management.



Stages

There are four stages of a product’s life cycle, as follows:

1. Market Introduction and Development

This product life cycle stage involves developing a market strategy, usually through an investment in advertising and marketing to make consumers aware of the product and its benefits.

At this stage, sales tend to be slow as demand is created. This stage can take time to move through, depending on the complexity of the product, how new and innovative it is, how it suits customer needs and whether there is any competition in the marketplace. A new product development that is suited to customer needs is more likely to succeed, but there is plenty of evidence that products can fail at this point, meaning that stage two is never reached. For this reason, many companies prefer to follow in the footsteps of an innovative pioneer, improving an existing product and releasing their own version.

2. Market Growth

If a product successfully navigates through the market introduction it is ready to enter the growth stage of the life cycle. This should see growing demand promote an increase in production and the product becoming more widely available.

The steady growth of the market introduction and development stage now turns into a sharp upturn as the product takes off. At this point competitors may enter the market with their own versions of your

product – either direct copies or with some improvements. Branding becomes important to maintain your position in the marketplace as the consumer is given a choice to go elsewhere. Product pricing and availability in the marketplace become important factors to continue driving sales in the face of increasing competition. At this point the life cycle moves to stage three; market maturity.

3. Market Maturity

At this point a product is established in the marketplace and so the cost of producing and marketing the existing product will decline. As the product life cycle reaches this mature stage there are the beginnings of market saturation. Many consumers will now have bought the product and competitors will be established, meaning that branding, price and product differentiation becomes even more important to maintain a market share. Retailers will not seek to promote your product as they may have done in stage one, but will instead become stockists and order takers.

4. Market Decline

Eventually, as competition continues to rise, with other companies seeking to emulate your success with additional product features or lower prices, so the life cycle will go into decline. Decline can also be caused by new innovations that supersede your existing product, such as horse-drawn carriages going out of fashion as the automobile took over.

Many companies will begin to move onto different ventures as market saturation means there is no longer any profit to be gained. Of course, some companies will survive the decline and may continue to offer the product but production is likely to be on a smaller scale and prices and profit margins may become depressed. Consumers may also turn away from a product in favour of a new alternative, although this can be reversed in some instances with styles and fashions coming back into play to revive interest in an older product.

Meaning of total productive maintenance

The total productive maintenance is described as a method that integrates both equipment maintenance and manufacturing process for overall improvement in the business process and increasing equipment availability.

Total productive maintenance is a proactive approach that deals in the comprehensive management of processes, [people](#), [environment](#) and systems. In the organizations which have implemented the process of total productive maintenance, the entire team plays an essential role as the responsibilities are shared between operators and maintenance experts.

Objectives

- Minimize cost
- Equipment reliability
- Reduce accidents
- Increased [ownership](#) amongst the employees
- Sharing of experience and knowledge
- Achieving [goals](#)
- Optimized work schedules of every employee
- Efficient workforce
- Avoid wastage
- Enhanced employee [skills](#)
- Production of [goods](#) without compromising on quality
- Non-defective goods to be sent to the consumer [market](#)
- Producing goods at the earliest possible time via zero breakdown
- Involving people in all organizational levels
- Rectifying [customer complaints](#)
- Keeping the workplace clean and safe

8 Pillars of total productive maintenance

1. Autonomous maintenance

One of the pillars of total productive maintenance is autonomous maintenance where operators are responsible for maintenance and adjustments of machines like inspection, lubricating and cleaning. The advantages of autonomous maintenance are

1. Boosts the knowledge of the operator about his equipment
2. Results in skilled and motivated employees
3. Provides greater ownership to the operator of their equipment
4. Makes sure that the equipment is lubricated and cleaned
5. Identifies any emerging issues so that they cannot disrupt productivity
6. The maintenance crew is free to handle high-level tasks

2. Focused improvement

One of the pillars of total productive maintenance is focused improvement where employees in small groups work proactively to attain improvements in equipment operation and that too regularly.

It ensures the working of cross-functional teams together to identify the root cause of the problem and apply the necessary solutions for continuous improvement. The advantages of focused improvement are

1. Integrating the collective talent of an organization to create a system for regular and continuous improvement
2. Identifying and resolving recurring problems with the help of cross-functional teams

3. Quality management

One of the pillars of TPM is quality management. It includes detecting and preventing design error in production processes using lean tools. The advantages of quality management are

1. Reducing numerous defects

2. [Targeting](#) quality issues to remove the root causes of defects
3. Minimizing costs by identifying defects at an early stage

4. Planned maintenance

One of the pillars of TPM is planned maintenance. It includes scheduling predictive and preventive maintenance routine based on behavior, history and sensor data of the machine. Its advantages are

1. Minimizing inventory via better control of parts that are prone to failure and wear-and-tear
2. [Planning](#) maintenance for the time when equipment is not reserved for production
3. Minimizing unplanned stop time

5. Education and training

This pillar of total productive maintenance achieves desired goals and objectives by filling in the knowledge gaps of the employees. It initiates coaching and training programs to improve the skills of its employees regularly.

Machine operators can develop maintenance skills and some managers are trained at improvement [strategies](#). The advantages are

1. Managers are provided training on the [development](#) and coaching of an employee
2. Maintenance staff learn preventative and proactive maintenance training
3. Operators learn to identify emerging issues and maintain equipment

6. Early equipment management

One of the pillars of total productive maintenance is early equipment management. It is related to the designing stage and its objective is to design a machine so that it becomes easy to maintain and operate it. Its advantages are

1. Employee involvement and practical review before installation makes the machine robust

2. It is easy to reach planned levels in performances at a faster pace because of minimum issues at the start-up stage

7. Administrative and office total productive maintenance

One of the pillars of total productive maintenance is administrative and office total productive maintenance. It aims at implementing the total productive maintenance principles in the administrative functions like scheduling, procurement and order processing. The advantages are

1. Addressing the issue of waste in administrative functions
2. Supporting production with the help of improved administrative functions

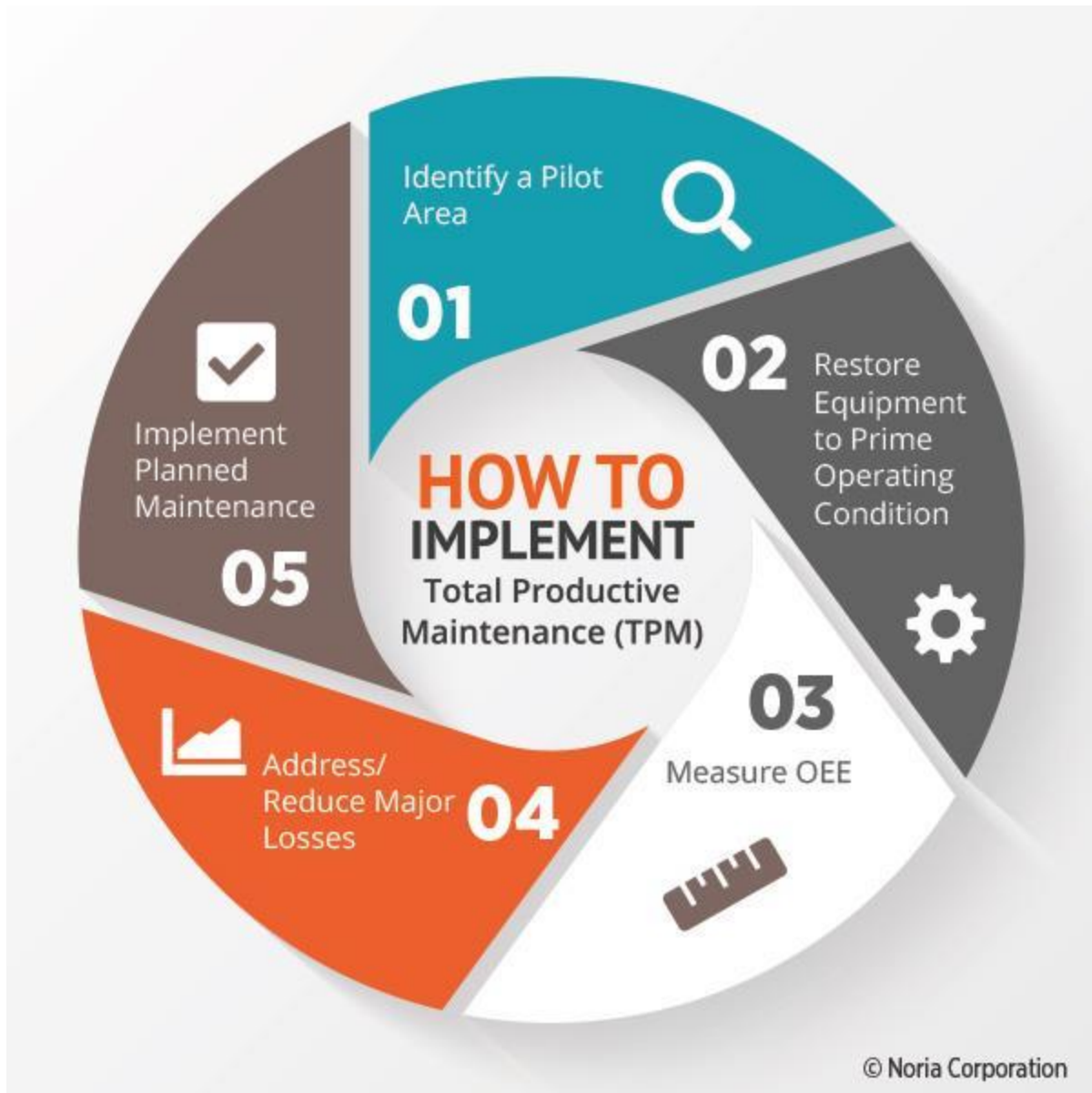
8. Safety, health, environmental conditions

One of the pillars of total productive maintenance is safety, health, environmental conditions. It deals in setting standards in the workplace to eliminate potential safety, health, and environmental risk. The advantages are

1. Eliminates risk to the health and safety of an employee
2. Puts its focus on providing an accident-free workplace

Implement Total Productive Maintenance (TPM)

Now that you have an understanding of the foundation (5-S system) and pillars on which the TPM process is built, let's take a look at how to implement a TPM program. This is generally done in five steps: identifying a pilot area, restoring equipment to prime operating condition, measuring OEE, addressing and reducing major losses, and implementing planned maintenance.



Step 1: Identify a Pilot Area

Using a pilot area to begin implementation helps gain more acceptance from staff when they see the benefits that come out of the process. When choosing equipment for a pilot area, consider these three questions:

- *What's the easiest to improve?* Selecting equipment that is easiest to improve gives you the chance for immediate and positive results; however, it doesn't test the TPM process as strongly as the other two options.
- *Where's the bottleneck?* Choosing equipment based on where production is clearly being held up gives you an immediate increase in total output and provides quick payback. The downside is that employing this equipment as a pilot means you're using a critical asset as an example and risk the chance of it being offline longer than you would like.
- *What's the most problematic?* Fixing equipment that gives operators the most trouble will be well-received, strengthening support for the TPM program. However, this doesn't give you as much immediate payback as the previous approach, and it may be challenging to obtain a quick result from figuring out an unsolved problem, leading to disinterest.

If this is your first time implementing a TPM program, your best choice is typically the first approach – the easiest equipment to improve. If you have some or extensive experience with total productive maintenance, you may choose to correct the bottleneck. This is because you can build temporary stock or inventory, making sure downtime can be tolerated, which minimizes risk.

Include employees across all aspects of your business (operators, maintenance personnel, managers and administration) in the pilot selection process. It's a good idea to use a visual like a project board where you can post progress for all to see.

Step 2: Restore Equipment to Prime Operating Condition

The concept of restoring equipment to prime operating condition revolves around the 5-S system and autonomous maintenance. First, TPM participants should learn to continuously keep equipment to its original condition using the 5-S system: organize, cleanliness, orderliness, standardize and sustain. This might include:

- Photographing the area and current state of the equipment and then posting them to your project board.

- Clearing the area by removing unused tools, debris and anything that can be considered waste.
- Organizing the tools and components you use regularly (a shadow board with tool outlines is a popular option).
- Cleaning the equipment and the surrounding area thoroughly.
- Photographing the improvements of the equipment and surrounding area and then posting to the project board.
- Creating a standardized 5-S work process to maintain the continuity of this process.
- Auditing the process with lessening frequency (first daily, then weekly, etc.) to ensure the 5-S process is being followed (update the process to keep it current and relevant).

Once you've established a baseline state of the equipment, you can implement the autonomous maintenance program by training operators on how to clean equipment while inspecting it for wear and abnormalities. Creating an autonomous maintenance program also means developing a standardized way to clean, inspect and lubricate equipment correctly. Items to address during the planning period for the autonomous maintenance program include:

- Identifying and documenting inspection points, including parts that endure wear.
- Increasing visibility where possible to help with inspection while the machine is running (replacing opaque guarding with transparent guarding).
- Identifying and clearly labeling set points with their corresponding settings (most people put labels with settings directly on the equipment).
- Identifying all lubrication points and scheduling maintenance during changeovers or planned downtime (consider placing difficult-to-access lubrication points that require stopping the machine on the outside of the equipment).

- Training operators to make them aware of any emerging or potential issues so they can report them to the line supervisor.
- Creating an autonomous maintenance checklist for all operator-controlled tasks.
- Auditing the process with lessening frequency to ensure the checklist is being followed.

Step 3: Measure OEE

Step three requires you to track OEE for the target equipment, either manually or using automated software (as long as it includes code tracking for unplanned stoppage time). For details on how to calculate OEE manually, reference Reliable Plant's [article on OEE](#). Regularly measuring OEE gives you a data-driven confirmation on whether your TPM program is working and lets you track progress over time.

Since the biggest losses in regard to equipment are the result of unplanned downtime, it's important to categorize every unplanned stoppage event. This gives you a more accurate look at where a stoppage is occurring. Include an "unknown" or "unallocated" stoppage time category for unknown causes.

It's recommended that you gather data for a minimum of two weeks to get an accurate representation of the unplanned stoppage time and a clear picture of how small stops and slow cycles impact production. Below is a simplified example of a top 5 loss chart. Each loss is categorized and is in descending order from the loss that causes the most downtime to the loss that causes the least.

Top 5 Loss Chart		
Loss Rank	Loss Category	Lost Time (minutes)

1	Equipment Failure: <i>Filler Jam</i>	400
2	Equipment Failure: <i>Bottle Labeler Down</i>	250
3	Setup/Adjustments: <i>Bottle Change</i>	170
4	Setup/Adjustments: <i>Label Change</i>	165
5	Equipment Failure: <i>Bottle Jam</i>	10
<p>Total Lost Time = 995 minutes (16.5 hours)</p>		

Step 4: Address/Reduce Major Losses

Once you've got a data-driven snapshot of where your top losses are, it's time to address them. This step uses the previously discussed pillar of focused improvement or kaizen. To do this, put together a cross-functional team of operators, maintenance personnel and supervisors that can dissect the OEE data using root cause analysis and identify the main cause(s) of the losses. Your team's process might look something like this:

- Select a loss based on OEE and stoppage time data. This should be the biggest source of unplanned stoppage time.

- Look into the symptoms of the problem(s). Collect detailed information on symptoms like observations, physical evidence and photographic evidence. Using a [fishbone diagram](#) to track symptoms and record information while you're at the equipment is strongly recommended.
- With your team, discuss and identify potential causes of the problem(s), check the possible causes against the evidence you've gathered, and brainstorm the most effective ways to solve the issue.
- Schedule planned downtime to implement the agreed-upon fixes.
- Once the fix has been implemented, restart production and observe how effective the fix is over time. If it resolves the issue, make a note to implement the change and move onto the next cause of stoppage time. If not, gather more information and hold another brainstorming session.

Step 5: Implement Planned Maintenance

The last step of the TPM implementation process is the integration of proactive maintenance techniques into your program. This involves working off the third pillar of planned maintenance. Choose which components should receive proactive maintenance by looking at three factors: wear components, components that fail and stress points. Identifying stress points is often done by using [infrared thermography](#) and [vibration analysis](#).

Next, use proactive maintenance intervals. These intervals are not set in stone and can be updated as needed. For wear and predicted failure-based components, establish the current wear level and then a baseline replacement interval. Once these have been determined, you can create a proactive replacement schedule of all wear- and failure-prone components. When doing this, use "run time" as opposed to "calendar time." Finally, develop a standardized process for creating work orders based on the planned maintenance schedule.

You can optimize maintenance intervals by designing a feedback system. Things like log sheets for each wear- and failure-prone component where operators can record replacement information and component condition at the time of replacement will be key. Additionally, conduct monthly planned

maintenance audits to verify the maintenance schedule is being followed and the component logs are being kept up to date. Review the logs' information to see if adjustments to the maintenance schedule need to be made.

WHAT IS RELIABILITY?

[Quality Glossary Definition: Reliability](#)

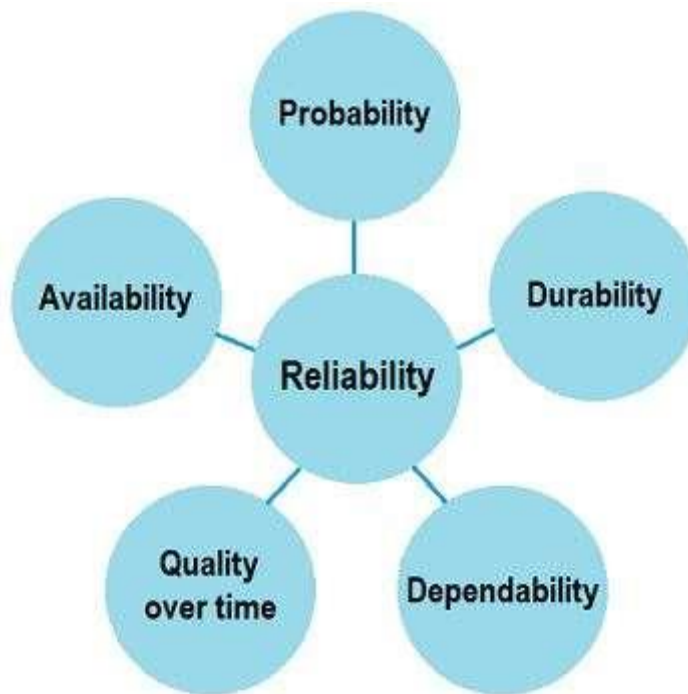
Reliability is defined as the probability that a product, system, or service will perform its intended function adequately for a specified period of time, or will operate in a defined environment without failure.

The most important components of this definition must be clearly understood to fully know how reliability in a product or service is established:

- **Probability:** the likelihood of mission success
- **Intended function:** for example, to light, cut, rotate, or heat
- **Satisfactory:** perform according to a specification, with an acceptable degree of compliance
- **Specific period of time:** minutes, days, months, or number of cycles
- **Specified conditions:** for example, temperature, speed, or pressure

Stated another way, reliability can be seen as:

- Probability of success
- Durability
- Dependability
- Quality over time
- Availability to perform a function



Failure Modes and Effects Analysis (FMEA) is a systematic, proactive method for evaluating a process to identify where and how it might fail and to assess the relative impact of different failures, in order to identify the parts of the process that are most in need of change.

Types of FMEA analyses

There are three main types of failure mode and effects analysis.

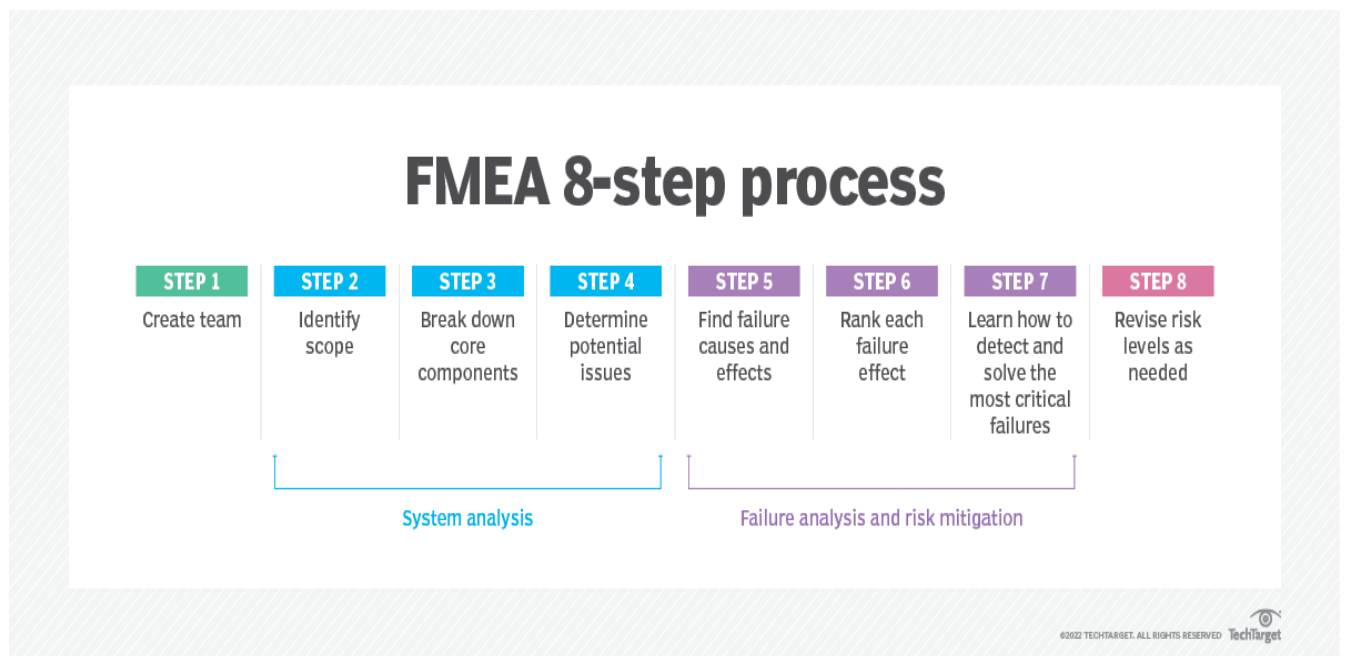
1. **Design FMEA (DFMEA).** This focuses on how to prevent or mitigate possible system, product or process failures. DFMEA is used to determine potential failures, how bad the effect could be, and how to prevent and mitigate failures. This process helps engineers detect failures early on so they can be corrected without being costly.
2. **Process FMEA (PFMEA).** This focuses on identifying potential risks to [process](#) PFMEA helps identify process functions, failure modes and effects to help organizations understand possible risks for each process step as early as possible.

3. **Functional FMEA (FFMEA).** This focuses on avoiding possible failures before corrective actions must be taken. FFMEA identifies and prioritizes potential functional failure modes.

Benefits of using FMEA

FMEA offers organizations the following benefits:

- gives them an early way to identify and mitigate potential modes of failure;
- minimizes the need to make late changes to a project due to potential issues;
- reduces the risk of a problem happening more than once;
- provides prompts for employees to follow when facing a potential failure mode;
- promotes more collaboration among teams that handle areas such as design, manufacturing, quality, testing and sales; and
- reduces the cost involved by avoiding fixing issues in development.



FMEA procedure

Failure mode and effects analysis might be implemented differently, depending on the organization. As such, the number of steps involved may also differ by organization. As a general process, FMEA steps include the following:

1. Create a team of employees who have collective knowledge or experience with the system, design or process and customer needs. This includes employees with experience in customer service, design, maintenance, manufacturing, quality, reliability, testing and sales.
2. Identify the scope of the system, design, process, product or service. Define the purpose of the system process, service and design.
3. Break down a system, design or process into its different components.
4. Go through system, design or process elements to determine each possible issue or [single point of failure](#).
5. Analyze the potential causes of those failures as well as the effects the failures would have.
6. Rank each potential failure effect based on decided criteria such as severity, likelihood of occurrence and probability of being detected. Organizations can use a risk priority number to score a system, design or process for risk potential.
7. Determine how to detect, minimize, mitigate and solve the most critical failures. This helps keep failure effect risks low by creating a list of potential failures and corrective actions to take.
8. Revise risk levels as needed.

The Malcolm Baldrige National Quality Award (MBNQA) is an award established by the U.S. Congress in 1987 to raise awareness of quality management and recognize U.S. companies that have implemented successful quality management systems. The award is the nation's highest presidential honor for performance excellence.



The Malcolm Baldrige National Quality Award (MBNQA)

Three MBNQA awards can be given annually in six categories:

- Manufacturing
- Service Company
- Small Business
- Education
- Healthcare
- Non-profit

The education and healthcare categories were added in 1999, while the government and non-profit categories were added in 2007.

The MBNQA award is named after the late Secretary of Commerce Malcolm Baldrige, a proponent of quality management. The U.S. Commerce Department's National Institute of Standards and Technology manages the award, and ASQ administers it.

malcolm baldrige national quality award

The criteria focuses on managing all components of an organization as a whole, cybersecurity risks, and understanding the role of risk management within a systems perspective of organizational performance management.

THE SEVEN MBNQA CRITERIA CATEGORIES

Organizations that apply for the MBNQA are judged by an independent board of examiners. Recipients are selected based on achievement and improvement in seven areas, known as the Baldrige Criteria for Performance Excellence:

1. **Leadership:** How upper management leads the organization, and how the organization leads within the community.
2. **Strategy:** How the organization establishes and plans to implement strategic directions.
3. **Customers:** How the organization builds and maintains strong, lasting relationships with customers.
4. **Measurement, analysis, and knowledge management:** How the organization uses data to support key processes and manage performance.
5. **Workforce:** How the organization empowers and involves its workforce.
6. **Operations:** How the organization designs, manages, and improves key processes.
7. **Results:** How the organization performs in terms of customer satisfaction, finances, human resources, supplier and partner performance, operations, governance and social responsibility, and how the organization compares to its competitors.

Baldrige Category	Category Content Description
1. Leadership	“How the senior leaders guide future opportunities . . . create high performance expectations for stakeholders.”
2. Strategic Planning	“Planning related to all aspects of deployment of these plans.”
3. Focus on Patients, Other Customers, and Markets	“How the organization seeks to serve customers, and of the market.”
4. Information and Analysis	“The main point within the Criteria is to drive attention to performance as a result of the organization and to drive improvement.”
5. Staff Focus	“All key human resource practices in the workplace and toward customers to adapt to change.”
6. Process Management	“All key work processes—health care processes that support the delivery of health care services.”
7. Organizational Performance Results	“Measures the success of the organization in meeting the needs of the provider.”

steps of effective baldrige assesment

1. Understand the commitment:

- All your senior leaders, managers, and staff need to understand the commitment and hours of hard work it takes to describe each process required by the framework.
- Commitment should be demonstrated by senior leaders and cascaded down to the process owners in order to ensure a positive experience during **your Baldrige journey**

2. Select your key players:

- Category leaders (or champions) should be designated in order to check and control progress for each category.
- Category leaders should also **identify process owners** as they will be the ones describing key processes as well as proving relevant data that describes process effectiveness.
- 3. **Train your key players:**
 - Training is key to a **successful Baldrige journey**. Category leaders and process owners should be able to understand the seven different categories, the requirements, and how processes should be mapped.
 - They should also understand the linkage between the processes described in categories one through six and category seven (results). Training is available every year through the National Institute of Standards and Technology (NIST), or your organisation can also find many independent consultants that offer training throughout the year.
- 4. **Gather information:**
 - Gathering the correct information will take time, but it is important to understand what the framework requires from your organisation and departments.
 - Eliminate unnecessary data and only describe key processes to full extent. Data also includes expected results that will be described in category seven.
- 5. **Roll up your sleeves and get started:**
 - Start with the organisational profile. It describes the overall purpose, environment, customers, partners, stakeholders, and key communities.
 - It also lists regulatory requirements, as well as workforce segments, but, most importantly, its products and services given to the customers.
- 6. **Keep improving:**
 - Once you have finished your Baldrige journey and received feedback from qualified examiners, use that feedback to modify your processes and improve.
 - Seek **opportunities for improvement**, take risks, and continue to innovate.
- 7. **Share best practices:**
 - Sharing best practices is probably the best way to create an environment of learning throughout the organisation. It does not do your business any good to keep its achievements in the dark.

- Share your best practices internally and externally, learn from others, apply new approaches and soon everyone will be fully committed to **continuous improvement** and excellence as part of their daily jobs.

business process re-engineering (BPR)?

Business Process Re-engineering (BPR) is the radical redesign of business processes to achieve dramatic improvements in critical aspects like quality, output, cost, service, and speed. Business process reengineering (BPR) aims at cutting down enterprise costs and process redundancies on a very huge scale.

Five steps of Business Process Re-engineering (BPR)

To keep **business process re-engineering** fair, transparent, and efficient, stakeholders need to get a better understanding of the key steps involved in it. Although the process can differ from one organization to another, these steps listed below succinctly summarize the process:

Below are the 5 Business Process Re-engineering Steps:

1. Map the current state of your business processes

Gather data from all resources—both software tools and stakeholders. Understand how the process is performing currently.

2. Analyze them and find any process gaps or disconnects

Identify all the errors and delays that hold up a free flow of the process. Make sure if all details are available in the respective steps for the stakeholders to make quick decisions.

3. Look for improvement opportunities and validate them

Check if all the steps are absolutely necessary. If a step is there to solely inform the person, remove the step, and add an automated email trigger.

4. Design a cutting-edge future-state process map

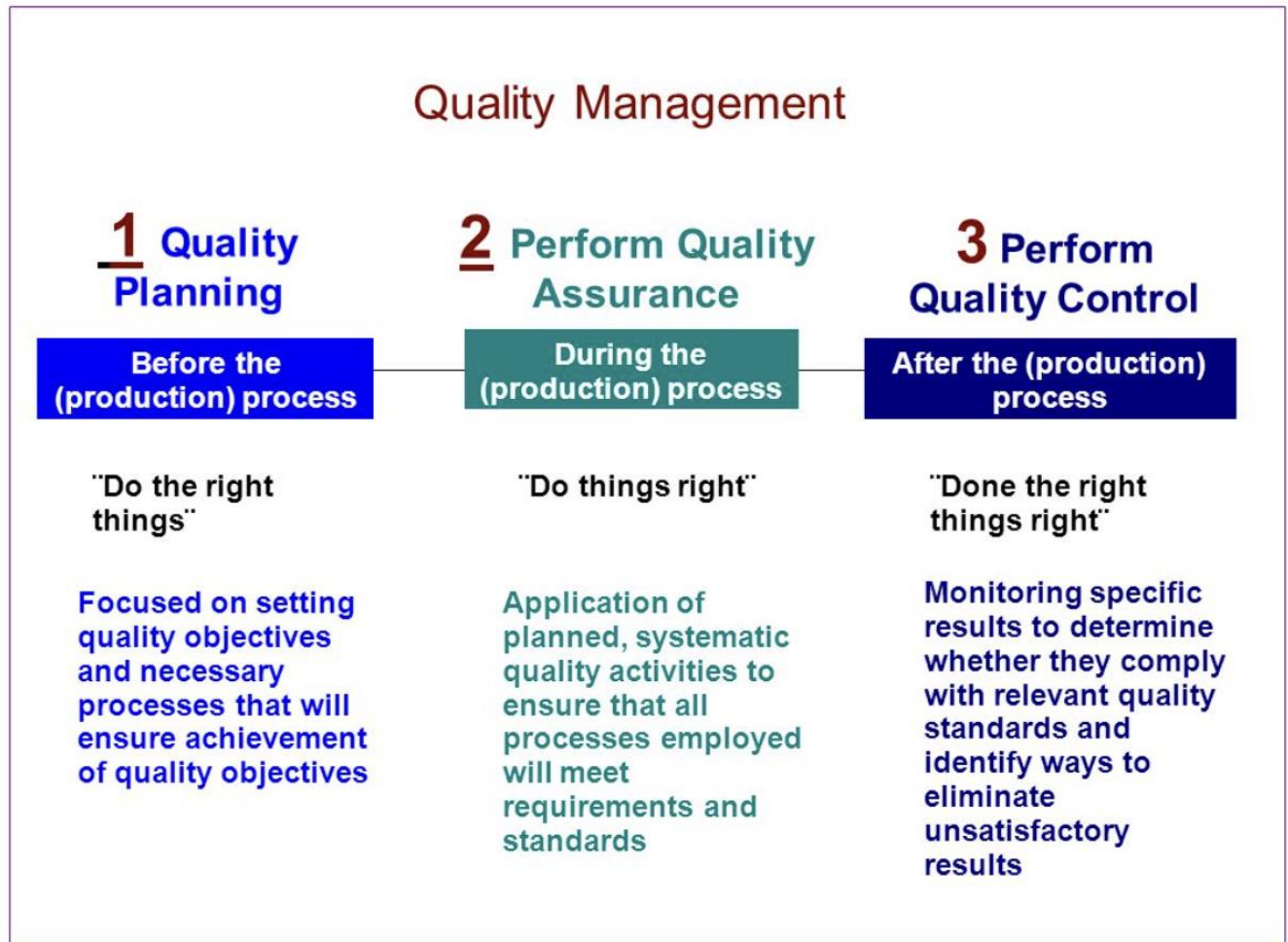
Create a new process that solves all the problems you have identified. Don't be afraid to design a totally new process that is sure to work well. Designate KPIs for every step of the process.

5. Implement future state changes and be mindful of dependencies

Inform every stakeholder of the new process. Only proceed after everyone is on board and educated about how the new process works. Constantly monitor the KPIs.

Applications of BPR models:

- Scheduling appointments
- Emergency room allotment
- Diagnostic imaging
- Patient follow up appointments
- Cancer screenings
- Bed allotment systems
- Minimizing duplication of records, bills, scheduling of follow ups and refills
- Reduce “off time” of the systems to improve accessibility and promptness
- Reducing wait times at Dr.'s office and many more.



quality culture?

The term quality culture refers to the goal of an organization and its members to permanently ensure and sustainably develop quality. However, the word contains an organizational cultural contradiction. The concept of quality is usually defined top-down by organizational management. The term "culture," on the other hand, refers to a bottom-up process. Accordingly, quality culture includes perspectives from management that incorporate cultural aspects from the workforce. In concrete terms, quality culture means creating a culture of trust, participation and communication in which quality goals are underpinned by employee participation.

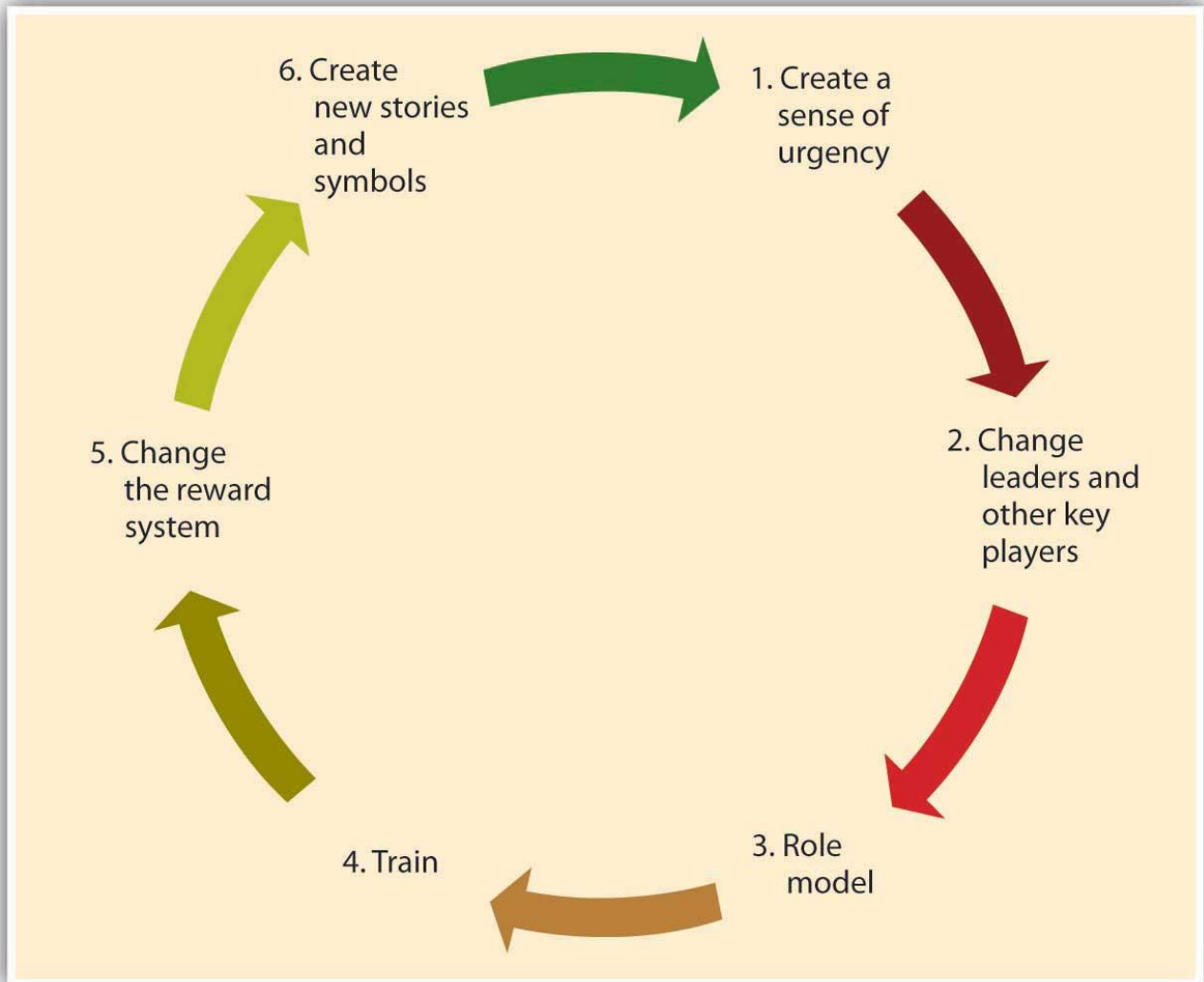
A quality culture that is sustainably implemented and lived by the workforce also generates a positive dynamic within the supply chain. In the direction of the customer, a pronounced quality culture can be

a further unique selling point (USP). In interaction with suppliers, a procure-to-pay process based on quality measurement can also have a positive effect. Quality culture connects suppliers and customers and creates room for a sustainable culture of trust!



Cultural change

Cultural change is **the process in which an organization encourages employees to adopt behaviors and mindsets that are consistent with the organization's values and goals.**



A **Sustainable Quality Management System (SQMS)** is an approach to quality management that emphasizes continuous improvement and innovation. It focuses on the long term and aims to improve the overall performance of the organization. It is considered as a way to sustain the business and its competitive advantage over other players in the industry.

The Basic Principles of an SQMS

There are seven principles of sustainability that can be applied when implementing an Sustainable Quality Management System. These include:

1- Continuous Improvement

- 2- Customer Focus
- 3- Leadership
- 4- Innovation
- 5- Adaptation
- 6- Transparency
- 7- Social Responsibility

These principles will allow you to achieve your organizational goals while maintaining environmental responsibility and social equity.

1. Continuous Improvement

The main idea behind it is to seek ways to improve products and services continuously. This principle involves making changes based on feedback from customers, suppliers and staff. For example, if there are complaints about the service provided by your company, then you need to find out what went wrong so that it does not happen again. You can use different methods such as surveys, focus groups, interviews etc., to get information regarding how people feel about certain aspects of your business. Once you know what needs changing, you can implement new policies and practices to encourage positive behaviour among your clients.

2. Customer Focus

This principle means that you always put the interests of your client first. Companies need to understand who they serve because these individuals may hold some power over whether or not the organization succeeds. Therefore, it is vital to listen closely to your customers' wants and provide solutions that meet their expectations. If you fail to keep up with consumer demands, you could lose market share and ultimately become obsolete.

3. Leadership

The leadership principle states that leaders must have the vision to motivate others towards achieving common objectives. This includes having a clear direction, setting standards and creating a culture where everyone feels valued. Leaders should also ensure that the entire team has access to training opportunities and resources that help them perform better at work. They should also take time to mentor those below them in hopes of promoting professional development.

4. Innovation

If you want to stay ahead of the competition, you need to innovate. Innovative ideas often come from unexpected places like brainstorming sessions, customer research and employee suggestions. When

innovating, try to look outside the box and think creatively rather than sticking too close to traditional methods. Try to avoid being afraid to experiment with new things because this might lead to failure but instead embrace risk-taking and learn from mistakes. In addition, consider using technology to assist innovation.

5. Adaptation

If you do not adapt to change, you will eventually disappear. To ensure that you remain relevant, you need to constantly evaluate yourself and determine what areas require improvement. By doing this, you will be able to identify weaknesses and strengths within your organization. Then, you can create strategies to address any issues that arise. Furthermore, you can develop plans to overcome obstacles that hinder growth. Finally, you need to communicate effectively with all stakeholders, including employees, shareholders and other external parties.

6. Transparency

When implementing sustainable quality management system principles, transparency is vital. Make sure that all members of an organization know exactly what's going on in terms of goals, processes and procedures. Transparency allows workers to see clearly why decisions were made and help prevent miscommunication between departments. Also, when communicating with consumers, businesses should strive to offer complete explanations about why something was done one way or another.

7. Social Responsibility

It goes without saying that business owners are responsible for ensuring that their company does not harm people or the environment through its products or services. However, there are many ways to go beyond just making money by providing social benefits, such as donating to charities, volunteering and giving back to communities.

7 MANAGEMENT TOOLS FOR QUALITY CONTROL

1. Flowchart

Most of us are familiar with flowcharts. You have seen flowcharts of reporting relationships in **organizational structures**.

Flowcharts are also used to document work process flows.

This tool is used when trying to determine where the bottlenecks or breakdowns are in work processes.

Flow-charting the steps of a process provides a picture of what the process looks like and can shed light on issues within the process.

Flowcharts are also used to show changes in a process when improvements are made or to show a new workflow process.

This example provides a picture so those checking children in will know the steps each takes depending on whether it is their first time or a child who has been there before.

2. Check Sheet

A check sheet is a basic quality tool that is used to collect data. A check sheet might be used to track the number of times a certain incident happens.

As an example, a **human resource department** may track the number of questions by employees, per category, per day.

In this particular check sheet the tool shows the total number of questions received by the human resources department.

This information helps that department identify opportunities to proactively share information with employees in an effort to reduce the numbers of questions asked.

Example Check Sheet

Human Resource Questions						
	Monday	Tuesday	Wednesday	Thursday	Friday	Total
Health Insurance	### //	### ###	////	### /	### ///	35
Disability Insurance	///	////	/	### /	//	16
Sick Time	###	### ///	///	////	###	25
Paid Time Off	### ###	### ###	### ////	### ////	### ///	47
Tuition Reimbursement	///	//	////	///	////	16
Payroll Error	//	/	///	/	//	9
Total	30	35	25	29	29	148

3. Cause and Effect (fish bone) Diagram

A cause and effect diagram, also known as a fish-bone diagram shows the many possible causes of a problem.

To use this tool, you need to first identify the problem you are trying to solve and simply write it in the box (head of the fish) to the right.

Next, you will list the major causes of the problem on the spine of the fish.

Causes are typically separated into categories of people, process, materials and equipment.

Causes are then identified through brainstorming with a group familiar with the problem.

Once all of the possible causes are identified, they can be used to develop an improvement plan to help resolve the identified problem.

Example Cause and Effect (Fish Bone) Diagram



4. Pareto Chart

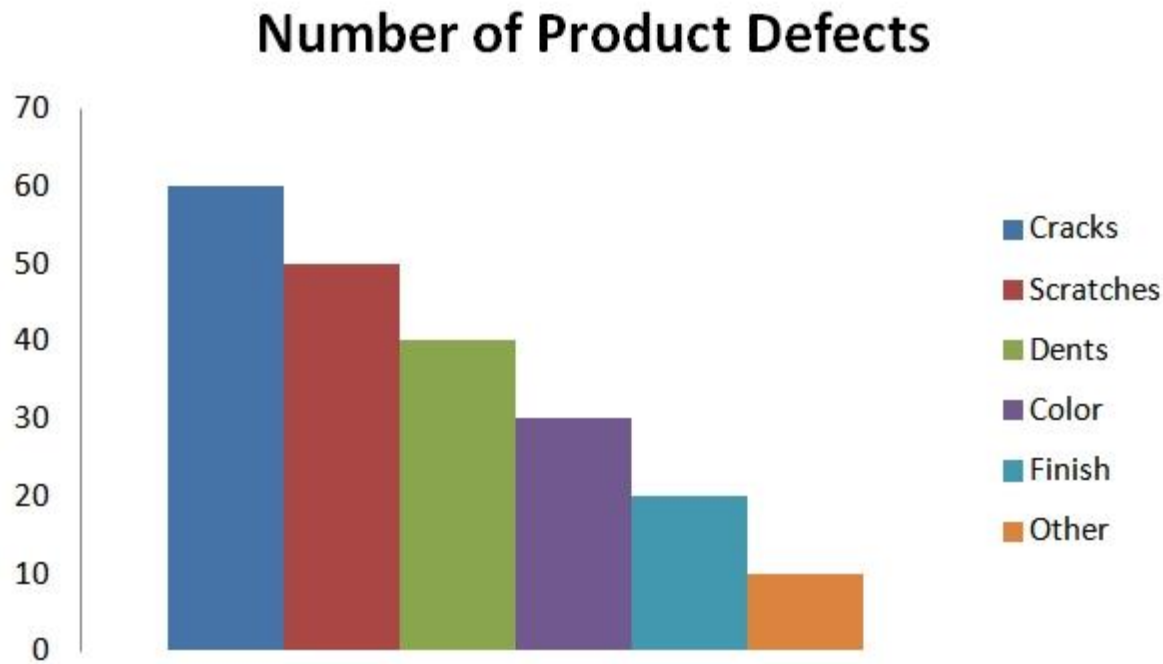
A Pareto chart is a bar graph of data showing the largest number of frequencies to the smallest.

In this example, we are looking at the number of product defects in each of the listed categories.

When you look at the number of defects from the largest to the smallest occurrences, it is easy to see how to prioritize improvements efforts.

The most significant problems stand out and can be targeted first.

Example Pareto Chart



5. Control Charts

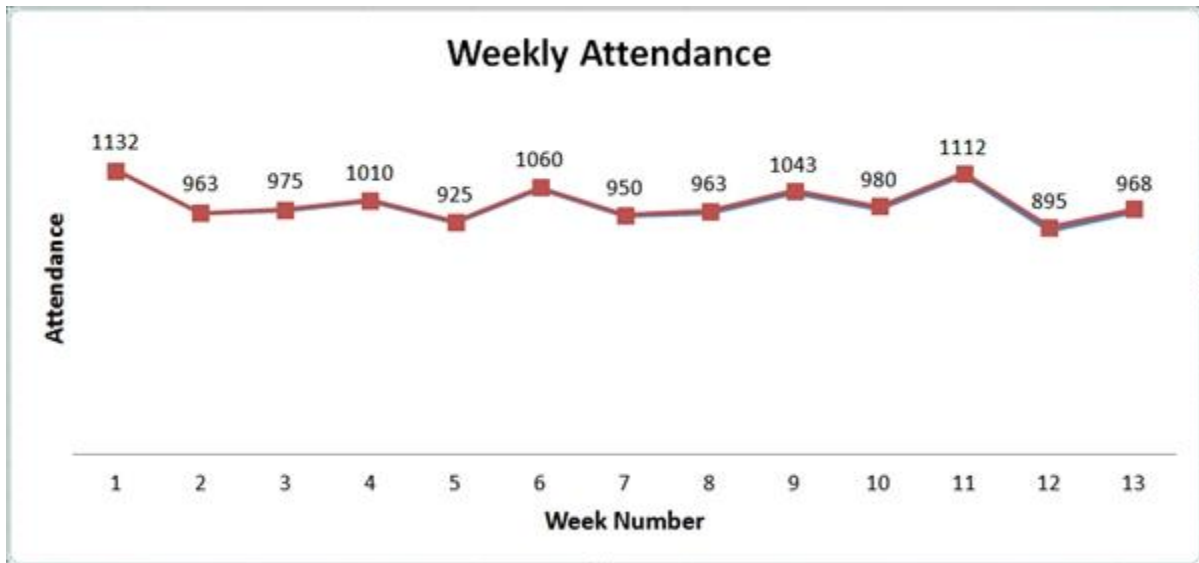
Control charts or run charts are used to plot data points over time and give a picture of the movement of that data.

These charts demonstrate when data is consistent or when there are high or low outliers in the occurrences of data.

It focuses on monitoring performance over time by looking at the variation in data points.

And it distinguishes between **common cause and special cause variations**. The Dow Jones Industrial Average is a good example of a control chart.

Example Control (Run) Charts



6. Histograms

Histograms are bar chart pictures of data that shows patterns that fall within typical process conditions.

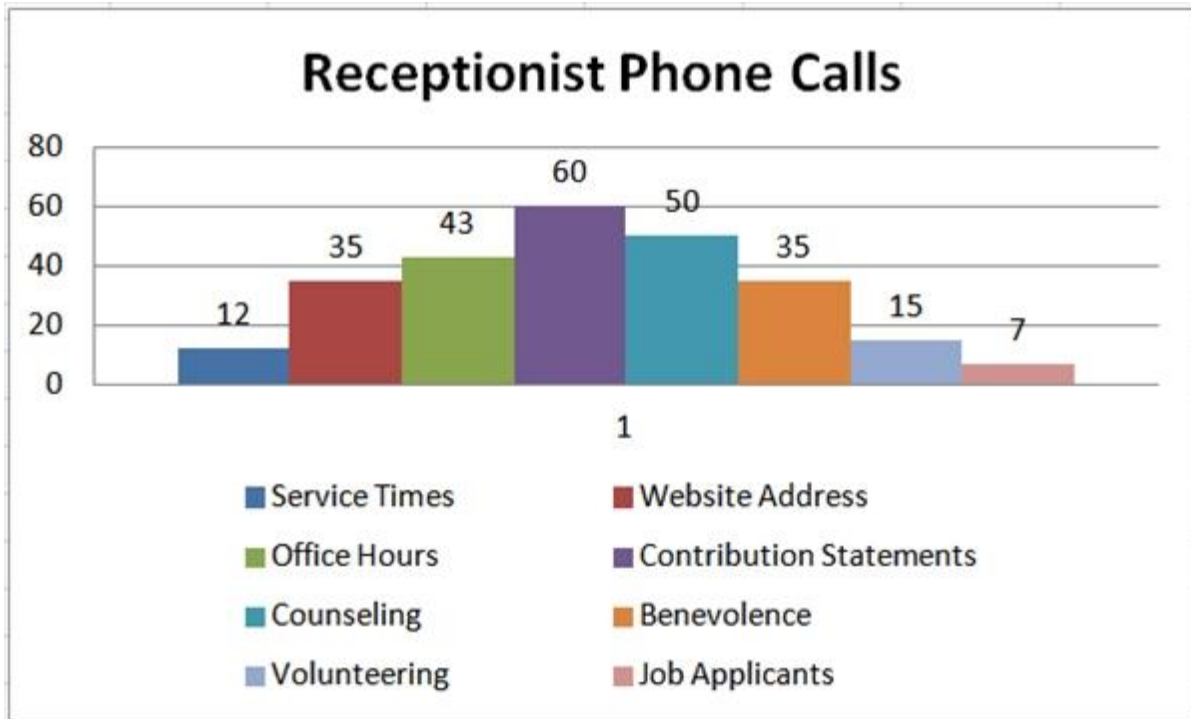
Changes in a process should trigger new collection of data.

A minimum of 50-75 data points should be gathered to ensure an adequate number of data points have been collected.

The patterns that are detected demonstrate an analysis that helps understand variation.

In this example, it shows that the receptionist received the most phone calls about contribution statements for that period.

Example Histogram



7. Scatter Diagrams

Scatter diagrams are graphs that show the relationship between variables. Variables often represent possible causes and effect.

As an example, a scatter diagram might show the relationship between how satisfied volunteers are that attend orientation training.

The diagram shows the relationship between volunteer satisfaction scores and volunteer orientation training.

Example Scatter Diagram



Each of these quality tools has unique advantages for certain situations. And, not all tools are used for all problem-solving.

Once a tool is learned, it can be adapted to different problem-solving opportunities.

Additionally, as with anything else, using tools properly takes practice and experience. Simply start using each of the tools, and over time, you will become proficient and a great problem solver!