

Q.1 Explain the fourteen steps involved in Crosby's total quality approach?

The 14 Steps of Crosby are meant to keep your quality improvement project on track. These are as follows-

1. Commitment of Management

First and foremost, management must be committed to improving the quality in a company. This commitment must also be transparent to all employees so that proper attitudes towards a Zero Defect product or service line are modeled.

2. Formulate the Quality Improvement Team

Forming a quality improvement team is the second step to achieving total quality management. Search for team members who will model quality improvement commitment, and who are not already over-committed to other projects. The quality improvement team should be able to effectively commit themselves to improvement of quality.

3. Measure for Quality in Current Practices

Before you can establish a plan for improving quality, you first have to know exactly where your products and services lie when it comes to conforming to requirements. Thus, the third step on Crosby's list to measure quality. Determine where there is room for improvement and where potential for improvement exists.

4. What Will the Cost of Quality Be?

How much is your cost of nonconformance to standards? What is the cost for quality? By answering these questions, you can demonstrate to all company employees that there is a need for a quality improvement system. Explain how the cost of quality figures into the overall company plan.

5. Quality Awareness is Central to Success

You will need to raise employee awareness to the importance of quality management. By doing this, and making quality a central concern to employees, you will increase the likelihood that your quality improvement efforts will be realized.

6. Remember the Quality Problems? Take Corrective Action

By now, you will have determined what your company's quality problems are. It is now time to take corrective action to eliminate the defects that have been identified. Be sure that you install a system, using causal analysis techniques, to ensure that these problems don't reoccur in the future.

7. Plan for Zero Defects

You need to create a committee to ensure that there are zero defects in your products and services. For Crosby, it's not enough, remember to have "as few as possible" defects. Instead, you really need to have this

8. Practice Effective Training for Supervisors

Ensure that your supervisors can carry out the tasks required of them for maintaining quality. By practicing supervisor training, with quality in mind (and the four absolutes), then you will be more likely to achieve zero-defect status.

9. Happy Zero Defects Day

Hold a quality event, called a zero defects day, where all employees are made aware of the change that has taken place. By holding a zero defects day in your company when implementing a total quality management project, you can be sure that you are increasing awareness for quality in your workplace.

10. Involve Everyone in Goal Setting

After implementing a change, you will need to ensure that you involve everyone - both employees and supervisors - in the goal setting process. By bringing everyone in the company in on setting goals for improvement, you can ensure greater commitment to achieving zero defects.

11. Eliminate Causes of Errors

Error-cause removal is necessary for the successful implementation of any quality improvement effort.

Encourage your employees to come to management with any obstacles or issues that arise in attempting to meet improvement goals. By having employees

12. Implement Recognition for Participants

The twelfth step of Crosby's 14 Steps is the implementation of employee recognition. By regularly recognizing those who participate in quality improvement efforts, employees will be much more likely to continue to participate.

13. Create Quality Councils

By bringing together specialists and employees, you can create a focused effort towards creating lasting quality improvement implementations. Make sure your quality councils meet on a regular basis.

14. Lather Rinse REPEAT

Quality improvement doesn't end because you have run out of the 14 Steps of Crosby. In order to really make improvements in the quality of your products and services, you will need to do it over again and again and again. Now go get started on your quality improvement projects.

Q.2 Explain the contributions of Deming to TQM.

1. Create constancy of purpose for improvement of product and service. Dr. Deming suggests a radical new definition of a company's role: A better way to make money is to stay in business and provide jobs through innovation, research, constant improvement, and maintenance.
2. Adopt a new philosophy. For the new economic age, companies need to change into "learning organizations". Furthermore, we need a new belief in which mistakes and negativism are unacceptable.
3. Cease dependence on mass inspection. Eliminate the need for mass inspection by building quality into the product.
4. End awarding business on price. Instead, aim at minimum total cost, and move towards single suppliers.
5. Improve the system of production and service constantly. Improvement is not a onetime effort. Management is obligated to continually look for ways to reduce waste and improve quality.
6. Institute training. Too often, workers learn their jobs from other workers who have never been trained properly.
7. Institute leadership. Leading consists of helping people to do a better job and to learn by objective methods.
8. Drive out fear. Many employees are afraid to ask

questions or to take a position even when they do not understand what their job is or what is right or wrong. The economic losses from fear are appalling. To assure better quality and productivity, it is necessary that people feel secure.

9. Break down barriers between departments. Often, company departments or units compete with each other or have goals that conflict. They do not work as a team therefore they cannot solve or foresee problems. Even worse, one department's goal may cause trouble for another.

10. Eliminate slogans, exhortations, and numerical targets for the workforce. These never help anybody do a good job. Let workers formulate their own slogans; then they will be committed to the contents.

11. Eliminate numerical quotas or work standards. Quotas take into account only numbers, not quality or methods. They are usually a guarantee of inefficiency and high cost.

12. Remove barriers that prevent workers from taking pride in their workmanship. Too often, misguided supervisors, faulty equipment, and defective material stand in the way of good performance. These barriers must be removed.

13. Institute a vigorous program of education. Both management and the work force will have to be

informed of new knowledge and techniques.

14. Take action to accomplish the transformation. It will require a special top management team with a plan of action to carry out the quality mission. Workers cannot do it on their own, nor can managers. A critical mass of people in the company must understand the Fourteen Points.

Q.3 Explain the contributions of Juran to TQM.

The Juran trilogy:

- a) Juran was one of the first to point out the cost of poor quality.
- b) He illustrated this concept in "Juran trilogy," a cross-functional management approach, constituted of three managerial processes: quality planning, quality control, and quality improvement.
- c) He pointed out that without change, there will be a constant waste.
- d) However, margins will be higher and the increased costs are recouped after the improvement.
- e) Like Deming, Juran stressed the importance of total quality management. However, he summed it up by saying total quality management begins at the top of an organization and works its way down. He developed 10 steps to quality improvement. The steps boil down to three main areas of management decision-making:

1. Quality planning

2 Quality control

3 Quality improvement

Quality planning involves building an awareness of the need to improve, setting goals and planning for ways goals can be reached. This begins with management's commitment to planned change. It also requires a highly trained and qualified staff. Juran managed Beefy's during the night shift. He set the standard for quality during his shift by training each employee on how to properly make a burger.

Quality control means to develop ways to test products and services for quality. Any deviation from the standard will require changes and improvements. On Sunday nights when business was slow, Juran invited mystery diners to come to Beefy's to rate the quality of the burgers. If he found that a diner was displeased, he retrained employees.

Quality improvement is a continuous pursuit toward perfection. Management analyzes processes and systems and reports back with praise and recognition when they are done right. Juran allowed the staff to engage in well-deserved burger-eating contest at the end of a profitable shift.

Q.4 State and explain the barriers to TQM implementation in an organization.

The obstacles are given as below

1. Lack of management commitment

a) In order for any organizational effort to succeed, there must be a substantial management commitment of management time and organizational resources.

b) The purpose must be clearly and continuously communicated to all personnel management must consistently apply the principle of TQM.

2. Inability to change organizational culture

Changing an organization's culture is difficult and will require as much as five years. Management must understand and utilize the basic concepts of change.

They are

1. People change when they want to and to meet their own needs

2. Never expect anyone to engage in behaviour that serves the organization's values unless a adequate reason(why) has been given.

3. For change to be accepted, people must be moved from a state of fear to trust.

3. Improper planning

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- a) All constituents of the organization must be involved in the development of the implementation plan and any modifications that occur as the plan evolves.
- b) Two-way communication of ideas is of great importance and should be taken by all personnel during the development of the plan and its implementation.
- c) Customer satisfaction should be the goal rather than financial or sales goals.

4. Lack of continuous training and education

- a) Training and education is an ongoing process for everyone in the organization. Needs must be determined and a plan developed to achieve those needs.
- b) Training and education are most effective, when senior management conducts the training on the principles of TQM. c) External trainer can be hired for communicating the TQM effort to all personnel on a continual basis.

5. Incompatible organizational structure and isolated individuals and departments

- a) Difference between departments and individuals can create implementation problems.
- b) The use of multifunctional teams will help to break down long-standing barriers. Restructuring to make the organization more responsive to customer needs may be needed.

c) Individuals who do not embrace the new philosophy can be required to leave the organization.

6. Ineffective measurement techniques and lack of access to data and results

a) Key characteristics of the organization should be measured for effective decision making. To improve a process are you need to measure the effect of improvement ideas.

b) Access to data and quick retrieval is necessary for effective processes. Find the root cause, correct the problem and eliminate the root cause to prevent recurrence of the problem.

7. Paying inadequate attention to internal and external customers

a) Organizations need to understand the changing needs and expectations of their customers. Effective feedback mechanism that provide data for decision making are necessary for this understanding.

b) Give the right people (who are directly working on the product) direct access to the customers. When an organization fails to empower individuals and teams, can't hold them responsible for producing results.

8. Inadequate use of empowerment and team work

a) Teams need to have the proper training and at least in the beginning by a facilitator.

b) Individuals should be empowered to make decisions that affect the efficiency of their process or the satisfaction of their customer.

g. Failure to continuously improve

It is tempting to sit back and rest on your laurels. However, a lack of continuous improvement of the process, product and service will even leave the leader of the pack in the dust.

Q5. What is Quality circles (QC)?

a) Conceptually Quality Circles can be described as a small group of employees of the same work area, doing similar work that meets voluntarily and regularly to identify, analyse and resolve work related problems.

b) This small group with every member of the circle participating to the full carries on the activities, utilising problem solving techniques to achieve control improvement in the work area and also help self and mutual development in the process.

c) The concept of the Quality Circle is based on "respect for the human individual" as against the traditional assumption based on suspicion and mistrust between management and its employees.

d) Quality circles built mutual trust and create greater understanding between the management and the

d) Quality circles built mutual trust and create greater understanding between the management and the workers. Cooperation and not confrontation is the key element in its operations.

e) Quality Circles aims at building people, developing them, arousing genuine interest and dedication to their work to improve quality, productivity, cost reduction etc.

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.

Q.6 What are the roles assigned to people in Quality Circles?

- (a) Few managers representing production, quality control, design, process planning form the Quality Circle (Q.C.) steering committee. This acts as a policy making body and will monitor the Q.C. in the Organisation.
- (b) Top management must attend the orientation courses designed for them.
- (c) A committed top and middle management is necessary.
- (d) 1. A facilitator must be appointed, who serves as a

link between top management, Q.C., steering committee middle management circle leaders and circle members.

2. Facilitator will coordinate training courses to get the support from all concerned including top management Q.C., steering committee, circle leader and circle members to help the circle leader in conducting the meetings, and to provide necessary resources.

(e) Employees are free to join or not to join. In it, 8 to 10 employees including the Supervisor from same workshop doing similar work join together as a group.

(f) The Supervisor can become leader of the group, if the members of Q.C. so desire.

It is a part time activity. Members of Q.C. are allowed to meet for an hour every week.

(g) During the various meetings, these groups progressively identify, select, analyse and solve the problems. Later they offer their proposed solutions to management for consideration, approval and implementation.

(h) A Management Committee at senior level is also formed, which overview the progress of Quality Circles.

Q.7 What are the Japanese 5s principles?

a) 5S, sometimes referred to as 5s or Five S, refers to five Japanese terms used to describe the steps of the system of visual management.

b) Each term starts with an S. In Japanese, the five S

are

1. Seiri,
2. Seiton,
3. Seiso,
4. Seiketsu, and
5. Shitsuke.

c) In English, the five S's are translated as

1. Sort,
2. Set in Order,
3. Shine,
4. Standardize, and
5. Sustain.

d) Each 5s represent one part f a five-step process thc can improve the overall function of a business.

Q.8 Explain Kaizen.

a) Kaizen is defined as a continuous effort by each ar every employee (from the CEO to field staff) to ensure improvement of all processes and systems of a particular organization.

b) Work for a Japanese company and you would soon realize how much importance they give to the process Kaizen.

c) The process of Kaizen helps Japanese companies to outshine all other competitors by adhering to certain policies and rules to eliminate defects and ensure long term superior quality and eventually customer satisfaction.

d) Following are the main elements of Six Sigma:

- 1 Teamwork
- 2 Personal Discipline
- 3 Improved Morale
- 4 Quality Circles

5 Suggestions for Improvement

e) "Five S" of Kaizen is a systematic approach which leads to foolproof systems, standard policies, rules and regulations to give rise to a healthy work culture at the organization.

f) 5s of Kaizen are as follows-

1. SEIRI
2. SEITON
3. SEISO
4. SEIKETSU-SEIKETSU
5. SHITSUKE-SELF DISCIPLINE

Q.9 Explain Supplier Rating.

a) A vendor rating system also referred to as a supplier rating "complements the evaluation and accreditation system in that it measures the performance of approved suppliers on an ongoing basis".

b) It also allows for meaningful feedback in order to improve supplier performance (Roylance, 2006:56)

c) Supplier Rating is done-

1. To obtain an overall rating of supplier

2. To communicate with suppliers regarding their performance.
3. To provide each supplier with a detailed and true record of problems for corrective action.
4. To enhance the relationship between the buyer and the supplier.

Q.10 Define Empowerment.

- a) Empowerment is the process of giving employees in the organisation the power, authority, responsibility, resources, freedom to take decisions and solve work related problems.
- b) In order to take such initiatives and decisions, they are given adequate authority and resources.
- c) The empowered employee becomes "self-directed" and "self-controlled".
- d) Empowerment focuses on employees to make use of their full potential.
- e) On the other hand, empowerment means giving up control on employees and letting every employee make decisions, set goals, accomplish results and receive rewards.
- f) It means making a person able to manage by himself.
- g) It is a process for helping right person at the right levels to make the right decision for the right reasons.

Q.11 Distinguish between Reward and Recognition.

Recognition Reward

- 1. Recognition is praising an employee and calling out their accomplishments without a tangible transaction
- 1. Rewards are gifts and awards that are given to employees.
- 2. It is non-cash. 2. It is Monetary
- 3. Needed frequently 3. Infrequently changes
- 4. Psychological 4. Financial
- 5. Personal 5. Impersonal
- 6. Value and principle base 6. Based on corporate budget
- 7. Used to keep employees 7. Used to attract employees

Q.12 Explain all the elements in 5s principle and also the implementation procedure of 5s in a manufacturing company.

1S Sort:

- 1. Remove all unnecessary materials and equipment:
Sort means that you remove all items from the workplace that are not needed for current production (or clerical) operations.
- 2. Getting rid of items in the workplace can be unnerving. People tend to hang onto parts, thinking they may be needed for the next order. They see an inappropriate machine and think that they will use it

somehow. In this way, inventory and equipment tend to accumulate and get in the way of everyday production activities. This leads to a massive buildup of waste factorywide.

3. In Sorting a "red-tag holding area" is used evaluate the necessity of an item instead of simply getting rid of it. This greatly reduces the risk of disposing of an item that is needed later.

2S □ Systematic Arrangement:

1. Make it obvious where things belong. Systematic arrangement can be defined as arranging needed items so that they are easy to use and labeling them so that they are easy to find and put away. 2. Systematic arrangement should always be implemented with Sort. Once everything is sorted through, only what is necessary remains. Next it should be made clear where these things belong so that anyone can immediately understand where to find them and where to return them.

3S □ Shine:

1. Clean everything, inside and out, generally making sure that everything in the factory stays clean. In a manufacturing company, Shine is closely related to the ability to produce quality products. 2. Shine also includes saving labor by finding ways to prevent dirt, dust, and debris from piling up in the workshop. 3.

Shine should be integrated into daily maintenance.

checkpoints.

4S Standardise:

1. Establish policies and procedures to ensure 5S.

Standardize is the method used to maintain the first three pillars Sort, Set in Order, and Shine.

2. Standards mean best, safest & easiest way to do a particular task. Defining and following standards for first 3S, will help use a systematic approach to 3S implementation and also easily identify any deviations and gaps at time of 5S audit.

5S Sustain:

1. Sustain means making a habit of properly maintaining correct procedures. First four pillars can be implemented without difficulty if employees commit to sustaining 5S conditions. Such a workplace is likely to enjoy high productivity and high quality.

2. In many factories great amounts of time and effort are spent in vain on sorting and cleaning because the company lacks the discipline to maintain 5S conditions and continue 5S implementation on a daily basis.

3. Even if the company occasionally organizes 5S campaigns and contests, without the Sustain pillar the other pillars will not last long.

Safety (often called "6S" or "5S 1")

In East African Language (Kiswahili) 5S is known as 5K. 5 Kiswahili words starting from the word K.

IMPLEMENTATION OF 5S PRINCIPLE PROCEDURE

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IMPLEMENTATION OF 5S PRINCIPLE PROCEDURE

1. Implementing 5S at your workplace requires knowledge and skill on understanding systematic approach to implement 5S principles. 2. More often 5S implementation fails because of lack of systematic approach. Many organisations jump to aesthetics by implementing color coding, signages, boards etc but often fail in long term.

3. Reason for failure is not following steps in systematic manner. Implementing systematic arrangement first requires removal of all unwanted items, otherwise unwanted items will be taking lot of space and systematic arrangement will not work.

another key point of implementing 2nd principle of 5S i. systematic arrangement is to follow below steps:

- 1 Decide what items to be kept (Do sorting first)
- 2 Decide How much to keep: For each item to be kept in work area, quantity to be kept must be defined first. without doing this step, 5S will always fail.
- 3 Decide where to keep: this is done by doing analysis of frequency of usage. items where frequency of usage is very high should be kept nearer to point of use. a Location map can be very useful to finalise on this step.
- 4 Decide How to keep: this step should always be done after doing above 3 steps. purpose of this step is mak