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Philip Crosby's 14-Point Formula

Achieving "Zero Defect" through continuous improvement

Quality has been imperative right from dawn of civilization. It is only when mathematicians and management gurus, - Edwards Deming, Juran, Armand V Feigenbaum, Genichi Taguchi, Kaoru Ishikawa proclaimed quality as a yardstick to success did it gain world-wide prominence. Another popular name in this prestigious group of statisticians is Philip Crosby.

Crosby started his career in 1952 as a junior technician. The view of quality was quite clear at that time: producers did not expect any product to fully conform to its requirements and error was considered inevitable. Crosby observed managers allowing deviations from the requirements in order to maintain a continuous flow of outputs. This led to the development of Crosby's concept of "Zero defects".

According to him, customary quality control methodologies of inspection are not the actual proponents of high quality. These inspection efforts although aimed at improving quality would increase costs substantially.

Crosby identified that inspection of a completed output is a delayed initiative. It results both in waste of time and effort (rework and scrap). He insists that instead of focusing on inspection of the final product, organizations should take preventive measures to ensure that the final product or service is free of defects or simply stated achieve "Zero Defects".

Many renowned quality gurus have ridiculed the concept of zero defects. They did not agree with Crosby and stated that the target was impossible to achieve. However, Crosby argued that Zero Defects is a possible goal. He identified a series of prevention measures called the "Fourteen steps to Quality Improvement" to help organizations initiate the cycle of continuous improvement to achieve "Zero Defects".

Philip B. Crosby's 14 Points:

Crosby proposed 'fourteen steps to quality improvement'. They detail the process of quality improvement initiative in an organization.

1. Make it clear that management is committed to quality

Successful implementation of a Quality initiative in any organization requires absolute commitment from top management. No initiative can sustain itself in an organization without their involvement. Management has to establish strategies keeping in mind the objectives of the organization and set priorities to attain its goals. Unless QM initiatives are included in strategic plans and given official sanction, they will lose out to their business priorities.

To ascertain this, Crosby says that the management should realize the importance of quality, and the benefits it can produce. More importantly, they should first understand what quality is and follow a defined strategy to implement the required initiative. The

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same should be communicated to all employees. This clarifies the top management's commitment to the quality initiatives and hence helps overcome resistance. In turn it fosters a culture in tune with the organization's quality mission.

2. Form quality improvement teams with representatives from each department

According to Crosby, Quality Improvement teams focused on improving quality need to be formed. This, Crosby insists should be represented by members from all the departments in the organization. The function of the teams is to facilitate quality improvement in the organization. Quality improvement, Crosby says should not end with corrective action initiatives but must include the setting up of education activities.

3. Determine where current and potential quality problems lie

The next step in the process is to identify the areas where current and potential problems lie and the areas for improvement. Crosby insists on the use of statistics (Statistical Process Control and Statistical Quality Control) to help identify these areas. Measuring and identifying problem areas in such a way can help the company focus its improvement efforts better.

4. Evaluate the cost of quality and explain its use as a management tool

In a typical production environment with a focus on meeting production targets, organizations often fail to evaluate their costs of poor quality. They overlook the cost involved in scrap, and rework. Cost of poor quality cannot rise directly with increase in manufacturing cost. At the same time organizations cannot spend too much on quality assurance and control to the extent that sustenance becomes unviable. Crosby thus says that organizations must continually focus on balancing costs of quality, if they are to sustain their margins and grow incessantly. He emphasizes the importance of identifying the optimum level of quality and its use as a tool for managing costs.

5. Raise the quality awareness and personal concern of all employees

According to Crosby all organizational activities are interrelated. Everyone in an organization has to support the other to achieve overall product quality. Employee involvement is necessary for this. Employee involvement can be achieved by effective communication and by conducting training programs. The training should help employees realize what non-quality is costing the organization and the role each of them can play in reducing it.

6. Take actions to correct problems identified through previous steps

Once the problem areas are identified, the next step is to take the necessary corrective actions. For this he suggests the use of tools like cause and effect analyses that help establish a system to analyze defects and resolve them on a regular basis.

7. Establish a committee for the Zero Defects program

Crosby advocates the formation of a committee for implementing the Zero Defects program. This committee, he said should work for "Error Cause Removal" or "ECR".



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The process entails doing just what it says -- remove the reason that caused the problem to happen in the first place.

Crosby emphasizes on identifying the root cause of the problem and working towards long-term solutions. Addressing immediate causes observed yield only short-term results. Removing causes of errors helps achieve Zero Defects and that, in turn, results in a better quality product for the customers at a lower cost.

8. Train supervisors to actively carry out their part of the quality improvement program

The inability of supervisors to understand or implement a quality initiative could result in its failure. Thus, Crosby considers training supervisors before starting the program an absolute necessity. This will not only help the supervisors play their part in the quality improvement program but will also lead to the successful implementation of the initiative.

9. Hold a Zero Defects Day to let everyone realize that there has been a change

Crosby suggests conducting an annual quality event to make everyone aware that an improvement has taken place after working for Zero Defects. This he says would help foster employee interest and involvement in working for quality.

10. Encourage all individuals to establish improvement goals for themselves and their groups

Involvement of every employee is necessary for implementing a Zero Defects program. According to Crosby, the employee who in reality does the job understands it best. Crosby believed that every employee has the potential and ability to do his job well. However, the management should facilitate this. Thus he insists on the management encouraging all individuals to establish improvement goals for themselves and their groups.

11. Encourage employees to communicate to management the obstacles they face in attaining their improvement goals

Employees often face obstacles in doing their work. This results in reduction of the employees' level of involvement, which eventually leads to poor quality. Crosby insists on developing effective channels to facilitate better communication between employees and the management. This is the only way by which subordinate employees can air their views and suggestions on quality to the management. Effective communication helps the management adopt corrective measures to tough situations leading to better TQM.

12. Recognize and appreciate those who participate

Crosby believed that organizations appreciating better performance would help in achieving superior quality. Thus, he insists on organizations possessing defined procedures to identify the employees who meet their goals and perform outstandingly. These defined procedures insisted will prevent any possibility of partiality creeping into the system resulting in de-motivation of efficient employees.



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13. Establish quality councils to communicate on a regular basis

Quality councils comprise small groups of employees who work together to identify, analyze and solve problems. The management evaluates the proposed solutions and clears and approves them for implementation. A quick management response to the proposed solutions is essential for the success of quality councils, as it ensures continued employee participation.

Quality councils keep employee involvement high in the continuous improvement process. They aim at overall improvement of the organization, and development of individual skills. Cost savings are another additional benefit derived from quality councils.

14. Do it all over again to emphasize that the quality improvement program never ends

Once the desired target is achieved, organizations often tend to relax. According to Crosby, quality improvement and working for Zero Defects should not be a one-time initiative. It should be a continuous program focusing on long-term results.

Having gone through Crosby's fourteen steps to quality improvement, let us consider how Nelson Nameplate Company implemented Quality Improvement Process based on Crosby's concept.

Nelson Nameplate Company, located in Los Angeles, California, was into the production of membrane switches, nameplates, graphic overlays, and lenses. The organization began its Quality Improvement Process in 1990. It based the program on Philip Crosby's concepts because the top management was keen on moving from an inspection-based quality system to one that insists on prevention and continuous improvement.

Realizing the importance of employee participation, Nelson fundamentally focused on designing programs that foster employee empowerment. The organization has over 300 employees working in its plant. All the employees had the autonomy to stop a job whenever they saw non-adherence to quality standards.

Berna Mendoza and Maria DeGross, both from the membrane department assemble parts. One fine day, they observed that a few parts that they were assembling were actually not as per the standard. They compared the deviating parts against some older parts only to realize that a color was missing. The job was immediately stopped and the problem rectified. Had this not been done they would have continued making poor quality products resulting in customer rejection. Timely action saved the company thousands of dollars.

Employee empowerment apart and various other initiatives focusing on involving employees in QIP were adopted. Teamwork was encouraged and bonuses are mostly based on success of teams and not on individuals. Regular meetings were held to apprise employees of the financials of the company. Employees were free to seek any clarification they desired in these meetings.



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Education and training

According to Crosby, employees' inability to understand or implement a quality initiative could result in its failure. Thus, Nelson viewed training programs as an absolute necessity in its QIP. In fact, the company's motto is "Every employee of the company must have a complete education in the understanding of quality and what it means to him and the company."

Nelson realized that over 100 employees did not know English. A teacher from a local community college was arranged to teach them English. Classes were conducted for two hours a day on any two days of the week. By 1995, the company had successfully accomplished its mission.

According to Mr. Cassutt, "Employees would go home at night after an English class and their sons and daughters would help them with their homework. This has also helped employees foster their relationship with their children."

Error Cause Removal

Apart from programs focusing on employee involvement, QIP also includes an Error Cause Removal program. According to the policy any employee who comes across a problem, error, waste, opportunity or some concern can convey it to the management. The management would respond promptly with suggestions for resolving the issue. Sometimes the management even rewards employees for their contributions.

For instance:

There was observed a frequent problem with tooling checks in the Quality Control department. Many jobs seemed to pass through the quality check despite not being within the tolerance levels. ECR resulted in creation of new standard for the quality control department. The department soon met its requirements.

Big savings

The ECR initiative has significantly benefited Nelson:

- Income has increased thrice over the past decade.
- Employee turnover has dropped fourfold.
- Customers receive their parts right, 'the first time and on time'. Returns from customers have been reduced thrice over the past 10 years.
- Supplier quality and on time performance has increased.
- Cost of quality decreased from over 30 percent of sales to less than 18 percent.

The QIP has created a significant cultural change throughout the company. "Before our QIP, an employee would often hide errors or problems in order to avoid being blamed for the problem. Now when a problem occurs, it is viewed as an opportunity to improve our processes. In short, Nelson is a fun place to work," say co-presidents Tom Casutt and Dave Lazier.



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Continuous improvement

The success story of QIP program does not end here. Continuous improvement was made a part of the QIP program. Nelson celebrates its progress every two years by holding a 'Zero Defects Day' celebration. The plant is shut down for half a day and all employees are bussed to a local park where they enjoy a catered lunch. Here they reaffirm their commitment to quality through various recreational activities.

In their own words, "positive factors contributing to the company's success include each employee's commitment to the Quality Improvement Process, increased quality and technical education classes, and our valued workforce."