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The Miracle Circles

The 42-year-old quality philosophy still works

Companies are increasingly implementing Six Sigma or Total Quality Management (TQM) concepts in their endeavor towards quality improvement. An in-depth study of these concepts helps us identify similarities between the concepts and certain other old quality philosophies. 'Quality Circles' is one such philosophy.

The genesis

Dr. K. Ishikawa of Mushashi Institute of Technology, Tokyo, first presented the concept of Quality Circles in 1962. According to Ishikawa, Quality Circles comprise a small group of workers from a common area voluntarily undertaking quality control activities. They meet regularly to identify work-related problems and propose solutions.

Composition

A Quality Circle (QC) essentially comprises eight to ten workers engaged in first line operations. They meet once a week to discuss and identify the root causes for quality eccentricities. Members of the circle examine the problems and suggest solutions. A consensus is reached after reviewing and analyzing individual solutions. The concept is built on the premise that the person who is directly involved in the process knows the dynamics of the process best. Therein lies the strength of this concept. This though does not preclude the involvement of executives and managers in the program. To ensure a smooth flow of the activities of a quality circle, appropriate guidance and constant support of the top management is needed.

Structure

Quality circles comprise of:

- Top management
- Coordinator
- Steering committee
- Facilitator
- Leader
- Members
- Non members

Top management

Though not directly a part of a formal Quality Circle structure, top-level management influences the successful implementation of the concept. A quality council collects information about the program and reports it to the Managing Director. The top management has to convey its policy of quality to its employees and encourage them to



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form QCs. It should extend its support and more importantly make it visible so that even workers in the lowest rung know what the top management is doing for them. It should also be lenient enough to financially support QC projects.

Coordinator

A senior manager acts as a coordinator. He arranges steering committee meetings and is responsible for proper documentation of various activities. He organizes training programs whenever needed. Overall, he is responsible for conducting seminars presentations and case studies and publishing periodicals to ascertain that the work of the QC is recognized.

Steering committee

A steering committee is a group of members working under the chairmanship of the CEO with functional heads as members. The members of steering committee are responsible for proper implementation of the QCs in their respective areas. They make the facilitators under them accountable to them. The CEO reviews the reports of the members' activities and makes suggestions.

Facilitator

A senior person in a specific area acts as a facilitator. He bears the responsibility to catalyze and motivate the quality circles. He acts as a guide or mentor for effective operation of quality circles. Further, he also elucidates the functioning of quality circles in his area in steering committee meetings.

Leader / Deputy Leader

The members of the circle chose a leader with due care and consensus. As the leader shapes the circle's effectiveness, training him is vital. A good leader should have the ability to motivate members of the team, conduct meetings, and coordinate efforts apart from involving all the members in the quality philosophy. He should strive to avert conflicts and ensure quality-oriented teamwork.

Members

Members of a circle ought not to be forced to join a Quality Circle rather; they should join of their own volition. They need to have an understanding of the functioning of Quality Circles. They should encourage other employees to participate in the movement, zealously involve themselves in the quality improvement programs, implement solutions and give presentations effectively.

Non-members

Non –members are important because they support circle members externally. Also if they realize the benefits of forming circles, they will willingly partake in the activities. Hence, non-members are often considered prospective members.

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Though Quality Circles essentially comprise a small group of workers, the involvement of all the employees of an organization at some point is critical. Following a structural hierarchy will ensure a smooth flow of the circle's activities.

Functioning of Quality Circles

Quality Circles meet regularly once a week for an hour or two. During the meeting, the leader and members of a Quality Circle discuss various problems in their sphere of work and explore possible solutions. Some of the techniques used by QC members to solve and analyze problems include:

- **Brainstorming:** Brainstorming is a process wherein a group focuses on an issue/problem with an aim to identify several radical solutions. They express their ideas as they occur, regardless of the content of the ideas, such that each of the participants has the opportunity to build upon the ideas of others. No discussion, evaluation, or criticism of ideas is allowed until the brainstorming session is complete. Every brainstorming session should have an assigned facilitator to record all the ideas generated.
- **Pareto analysis:** It is a technique of analyzing problems by ranking causes from the most significant to the least significant. It is based on the principle that most effects come from relatively few causes, that is, 80% of the effects come from 20% of the possible causes. For example, analysis of the reasons for rejection of a component might show 10 possible causes. Typically, two of these will account for approximately 80% of all rejected components and should logically be tackled first.
- **Ishikawa diagram:** It allows a team to identify, explore and graphically display in increasing detail, all the possible causes related to a problem. Thereby, it helps identify the root cause(s) of the problem. Once the root cause(s) of the problem is (are) discovered, rectification becomes easy.
- **Histogram:** This is a graphical representation of a series of measurements categorized into intervals. The frequency distribution is drawn as proportionally sized bars. Histograms clearly depict the mean value, pattern of variation and the extent of variation with reference to specifications in the process.
- **Control charts:** A typical control chart is a graphical display of a quality characteristic that has been measured or computed over time, against established control limits from a process. It embraces the strength of quantitative and graphical methods to control quality.

Having seen a brief account of Quality circles, let us see some success stories of QC implementation.

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A few success stories

The case of Tata steels

Tata Steels, a world leader in the steel industry started its QC journey way back in 1990 with a negligible number of Quality Circles. As per the recent statistics, the number of quality circles operating in Tata Steel has risen to over 7500. It proudly declares that more than 96% of its employees are involved in this quality movement. To their credit Quality Circles have solved 14000 problems by themselves, which benefited the company not only in terms of quality improvement but also in terms of productivity, cost, and safety. Many of the circles have participated in competitions at chapter level, national level and international level too.

The story of United Catalyst

The success story of United Catalyst in Louisville, Kentucky tells us how process improvement was made possible through QC. United Catalyst, initiated quality circles at the grassroots level with an orientation of process improvement. This resulted in a significant increase in the total yield from 90.8% to 95.6% out of which a particular product line's yield went up from 89% to 98.6%. This in turn increased their revenue by millions of dollars.

At E.I. du Pont de Nemours & Co

The fiber department of the US chemical company E.I. du Pont de Nemours & Co. (DuPont) plant in Richmond was worried about its yield rate. They tackled the issue with the help of Quality Circles. "Quality Circle team was determined to look into the matter and root out the problem so that the quality improvement can be achieved at the earliest," says Buck Ellis, a production operator serving as team leader. The process of production included four distinct areas namely spinning, bonding, slitting and packaging. Quality Circles were formed accordingly and underwent an eight-hour training session during which they acquired the knowledge of the production process and various improvement tools and techniques. As a result, everyone started involving in the quality amelioration and actively giving suggestions for betterment. This led to drastic improvements and automatically yield rate increased.

Apart from these companies, legends in the automobile industry like Honda of America, Mitsubishi, and Toyota have also experienced benefits by implementing Quality Circles. Indian majors like BHEL, Larsen & Turbo, BEL, Ashok Leyland are few to name from the unending list of companies successfully implementing Quality Circles.

Is this an out-of-style practice?

Such a legendary concept is being viewed as an outdated concept today. If carefully observed however, today's popular concepts such as Six Sigma and TQM, embrace the basic thoughts of QC.

TQM is a management philosophy, which seeks to integrate all the organizational functions to focus on meeting customer needs and organizational objectives. It is based on the participation of all members of an organization in improving processes, products,



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services and the culture in which they work. Quality Circles on the other hand include members from the same work area or department carrying similar activities as that of TQM. Thus, TQM can be viewed as an enhanced version of the QC concept.

Six Sigma is a right blend of qualitative and quantitative measures to improve quality. Six Sigma training involves training people at all levels, about the concept and functionality of Six Sigma to the extent based on the roles they are going to perform in the real time implementation. Training frontline people in Six Sigma method is akin to that of training the members of a Quality Circle. However, Six Sigma, apart from training frontline operators, also trains employees at all managerial levels. Thus even Six Sigma embraces the basic thoughts of QC concept.

So, it is not true that QC concept is no longer valid; rather it got enhanced and seldom seen in its congenital form.

Conclusion

Quality Circles are effective tools to trace the problems in a specific work area and find solution. It is not limited to manufacturing firms. They are applicable in a variety of organizations where there is scope for group-based solution of work related problems. Quality Circles are relevant for factories, firms, schools, hospitals, universities, research institutes, banks, government offices etc. With proper dedication of QC members and support of top management, Quality Circles can become miracle tools that improve overall quality.