

Quality Circle – Formation and Implementation

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Abstract—Organizations are actively trying to involve grass root employees in continuous improvement. To involve grass root employees in productivity and process efficiency improvement activities, a team-based environment must be developed in which they can participate actively in improving their process, product, or service performance. One such employee participation program is Quality Control Circles (QCCs). Quality Circle is one of the employee participation methods which implies the development of skills, capabilities, confidence & creativity of the people through cumulative process of education, training, work experience & participation. It is a people – building philosophy, providing self – motivation & happiness in improving environment without any compulsion or monetary benefits. In this paper we present the formation and implementation of a quality circle

Index Terms—Quality Circle, philosophy, employee participation, formation, implementation.

I. INTRODUCTION

The genesis of Quality Circle was in war ravaged Japan in the 1940's, which was struggling to survive in the industrial world. Prof. Ishikawa, who believed in tapping the creative potential of workers, innovated the Quality Circle movement to give Japanese industry that extra edge in creativity. A Quality Circle is a small group of employees from the same work area who voluntarily meet at regular intervals to identify, analyse, and resolve work related problems. This not only improves the performance of any organisation, it also motivates and enriches the work life of employees. The philosophy behind Quality Circles is building people.

"Quality Circles are small groups of people doing similar work who, together with their supervisors volunteer to meet for an hour a week to study and solve work related problems which affect them. Circle leaders and members are trained in simple problem solving techniques which identify causes and develop solutions. At an appropriate time, presentations are made by the quality circles to the management who decide whether to accept, modify or decline the proposals."

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II. OBJECTIVES OF QUALITY CIRCLE ACTIVITIES

2.1 For Individuals

a) to give opportunity to employees to learn new techniques for recognition,

b) to give opportunity to employees to identify and solve the problem in their work area,

c) to improve job satisfaction,

d) to create problem-solving capability,

e) to build an attitude of problem- prevention,

f) to develop leadership,

g) to develop a greater safety awareness, and

h) to improve inter-person relationship.

2.2 For Organisations

a) to improve quality and productivity of products,

b) to reduce wastages;

c) to improve employee motivation;

d) to inspire more effective team work;

e) to develop a healthy superior- subordinate relationship;

f) to improve communications within the organization;

g) to promote quality, safety, cost and work consciousness; and

h) to develop a complete coherent problem solving methodology within the organization.

III. QUALITY CIRCLE OPERATION

3.1 Membership

Ideally, the members of a particular Circle come from the same work area or who perform similar work so that the problems they select are familiar to all of them and it is easy to find solutions with their experience and knowledge. Alternatively, a Circle may also be constituted with members from different connected work areas. In such case, they may look at the problem from all angles so that it is easy for them to arrive at optimum solutions. Whichever may be the formation of a Circle, the membership is strictly voluntary.

3.2 Strength of a circle

An ideal size of a Circle is 5 to 10 members. The size must never be so large that each member does not get sufficient time to participate and contribute in the meeting.

3.3 Number of Circles in a Given Work Area

The number of Circles in a given work area may be more than one if the response for working in Quality Circles is more than 15, but any one person cannot be a member of more than one Circle. To avoid duplication of activities in the same work area, good co-ordination should be maintained between the leaders of these Circles and the facilitator.

3.4 Quality Circle Meetings

As a thumb rule the meetings should take place once a week and each meeting should be for approximately one hour. It is preferable to conduct the meetings in a separate room in the same work area or very close to the work area. Circle meetings may be held during or after office/factory hours depending on the convenience and discretion of Circle members.

3.5 Working Process

The diagram given in the right-hand column graphically depicts the steps involved in the working process.

3.6 Nature of the problems

The following are a few examples of areas which can be tackled by QC members :

Production and service : Productivity improvement, quality and Service improvement and reducing wastages.
Engineering : Improvement in attending breakdown and preventive maintenance, reducing downtime for searching of tools, and updating drawings.

Materials : Inventory control, development of vendors and codification.

Quality Assurance : Sampling and testing methods, feed-back system, quality improvement studies, field trials, and improvement in inspection methods.

General : Better customer service, systems development/improvement, communication improvement, conservation in printing and stationery items, control in usage of postal, telephone, transport systems, etc.

Work Environments- : Safety and house keeping

IV. STRUCTURE OF QUALITY CIRCLES

4.1 Basic Elements

basic elements which constitute the structure of Quality Circle are as follows: a) Top management,

b) Steering Committee, c) Coordinator,

d) Facilitators, e) Leaders,

f) Members, and g) Non-members.

4.2 Top Management

The executives at the highest level who extend all the necessary support to the activities of the Quality Circles, and through their personal presence at the presentations and other major activities of Quality Circles make their support visible to all. The top management has an important role to play to ensure the success of implementation of the QC concept in the organization. They should be fully convinced and committed to Quality Circles.

4.2.1 Functions

a) demonstrate unequivocally its understanding and faith in the concept of Quality Circles,

b) make provision in the annual budget for meeting the expenditure of operation of Quality Circles,

c) encourage healthy growth through competition between Quality Circles by instituting an award to the division / department which performs best in propagation of Quality Circles as well as to the Quality Circles which make the best

presentations at any centrally organized convention or conference,

d) give necessary guidance to employees at different levels for making the Quality Circle movement a self- sustained success,

e) include propagation of Quality Circles as one of the Corporate objectives,

f) attend management presentation of various Circles,

g) respond to the Circle recommendations in a positive way without any delays,

h) verify the implementation of Circle recommendations without any undue delays,

j) depute the members to outside seminars/ workshops, and

k) periodically review the QC activities on a regular basis.

4.3 Steering Committee

As soon as a decision is made to implement Quality Circles programme, the steering committee comprising the chief executive, divisional heads of departments and the coordinator is constituted. The chief executive and the coordinator act as chairman and secretary of the steering committee respectively. The meetings are convened at least once in two or three months.

4.3.2 Functions

a) promote Quality Circles in the Organization;

b) develop working methodology and give the guidelines relating to Quality Circle operations with respect to the facilities to be

provided, for examples, place, date and time of conducting the meetings, type of rewards for motivation;

c) establish the programme objectives and resources;

d) provide policy guidelines and direction;

e) nominate coordinator and facilitators

f) attend various presentations of the studies carried out by Quality Circles

g) take decisions for implementation of recommendations of Quality Circles

h) obtain feedback from facilitators and review quality circle activities

i) provide necessary provisions in the annual budget

k) grade the project reports of Quality Circles for awards

l) review the overall working of the Quality Circles

4.4 Coordinator

coordinator coordinates the activities of Quality Circles throughout the organization and carries out such functions as would make the operation of Quality Circles smooth, effective and self-sustained.

4.4.1 Functions

a) registers Quality Circles in the unit/division:

b) has liaison with the facilitators for ensuring regularity of Circle meetings, mid-term presentations, etc, and to analyze 'activity level charts'.

c) convenes Steering Committz meetings and circulate record notes thereof;

d) convenes monthly leaders' meetings and circulate record notes thereof;

e) organizes systematic documentation of Quality Circle case

studies and publishes their compilation annually;

f) organizes top-management presentations in coordination with the facilitators;

g) gives assistance to Circles, whenever asked for;

h) conducts opinion surveys to assess intangible gains from time to time

i) publishes newsletter on Quality Circle activities in local language;

j) prepares training material for facilitators and leaders in conjunction with training department;

k) organizes training programmes for facilitators and leaders in collaboration with training department;

l) organizes lectures, seminars, conferences, exhibitions, etc, on Quality Circles;

m) publishes periodicals, pamphlets, etc, for the promotion of Quality Circles;

n) provides display boards of Quality Circles in the shops, areas where Quality Circles are functioning;

r) exposes all employees at the grass- roots and different levels of executives to the concept of Quality Circle through audiovisuals and lectures;

s) disseminates knowledge by circulating information and news on Quality Circles from journals/books;

t) develops schemes for the recognition of Quality Circles for the contributions made by them;

u) organizes presentations of Quality Circle case studies in sister units for mutual exchange of ideas; and

v) organizes conventions of Quality Circles.

4.5 Facilitator

The facilitator is usually a senior officer of the department where Quality Circles are working and is nominated by the management. He does not only guide the Quality Circle activities in his area, but also entices others to get involved in these activities. Because of the crucial role that the facilitator plays in making Quality Circles operation a success, his selection shall be done carefully.

4.5.1 Functions

a) attend Quality Circle meetings, at least for brief periods;

b) guide Circles in the proceedings of meetings,

c) coordinate with the training officer for organizing necessary training programmes in SQC techniques, QC working procedures etc, for Quality Circle leaders and members;

d) provide necessary facilities and act as a catalyst for the Circle members;

e) coordinate and obtain the support and

f) assistance from other functional areas wherever required by the Quality Circles; act as intermediary in resolving Quality Circle problems;

g) work closely with the Steering Committee;

h) ensure that each Quality Circle keeps a record of its activities by way of maintaining registers, follows up for implementation of completed project;

j) arrange for periodical management presentations and to schedule meetings of Quality Circles ;

k) communicate the Steering Committee decisions regarding the implementation of recommendations submitted by

Quality

Circles, searches for new ideas and publicizes the programme;

l) collect and arrange dissemination of literatures relating to Quality Circle activities elsewhere

m) arrange periodical get-together of Circle members with the top executives of the organization; and

n) strengthen and promote participative culture within the organization

4.6 Leader
Leader is chosen by the members of a Quality Circle among themselves. Members may also themselves decide to have leader by rotation. The deputy leader may also be chosen by the Quality Circle so as to ensure that Circle meetings and other activities would go on uninterrupted even if the leader is not present. Initially the supervisor may be a leader and another worker as deputy leader.

4.6.1 Functions

a) conduct circle meetings regularly

b) maintain registers regarding the proceedings of the Circle meetings, problem-selections, etc;

c) train the members with the assistance of the facilitator/co-ordinator

d) maintain a high degree of cohesiveness of his team with a sense of identity;

e) involve every member in the circle meeting activities

f) set Circle goals and improve performance towards the same;

g) chalk out action plans and delegate responsibility to Circle members;

h) bring about a consensus approach in problem solving

j) prepare the project report and present to the departmental heads and Steering Committee ;

k) appraise the progress of the work with the facilitator and the concerned departmental head ;

m) interact with other functional areas in problem-solving;

n) review progress vis-a-vis goals and objectives set for themselves;

p) arrange for mid-term and top management presentations

q) catalyze non-members to join existing

Circles or start new ones.

4.7 Members

Members are the basic element of the structure of Quality Circles. Members of Quality Circle are a small group of people from the same work-area or doing similar type of work, who voluntarily form a Quality Circle. Once a Circle is formed, they remain as permanent members of the Circle, unless they leave the work- area for good. The members should contribute actively to the effective functioning of their quality Circle, aiming at better performance of their workarea in every way on an on-going basis.

4.7.1 Functions

a) meet regularly (one hour in a week) and actively participate in Quality Circle meeting;

b) contribute ideas for problem solving;

c) assist the leader in data gathering, recordkeeping, interacting with other areas,

- d) catalyze generation of cohesive team working in the work-area, strive for the highest standards of performance of the Circle,
- e) involve in the improvement of the total performance of the organization, and
- f) take part in the mid-term and top management presentations.

4.8 Non Members

Non-members are those who are not members of the Quality Circle but may be involved in the process of the implementation of the Circle recommendations. They are welcome, if they so desire, to form new Circles or join existing Circles. They should actively involve themselves in the implementation of the Circle recommendations

V. TRAINING

5.1 The objective of training for Quality Circle activities is to prepare the concerned people for playing their roles effectively for the successful functioning of Quality circles. People are to be trained for their specific roles and hence emphasis need to be paid on the role of each involved in the Quality Circle function.

5.2 The success of the Circle activities depends on the training received by the concerned people in:

- a) proper understanding of the concept and philosophy,
- b) translating effectively the philosophy into practice,
- c) proper application of simple statistical quality control techniques,
- d) improving communication capability, and
- e) developing leadership qualities and building up individuals.

5.3 Training is primarily given to facilitators and leaders who, in turn, will have to train Circle members. The training requirements for facilitator and leader are given in 5.3.1 and 5.3.2.

5.3.1 For the facilitator, the stress is laid on:

- a) reinforcing Circle leader's skills,
- b) improving the Circle leader's performance,
- c) catalyzing Circle activities,
- d) strengthening and promoting participative culture,
- e) using simple techniques in problem solving, and
- f) identifying likely problems/pitfalls and guarding against them.

5.3.2 For the leader, the stress is laid on:

- a) leadership role,
- b) group techniques,
- c) communication,
- d) goals setting,
- e) application of techniques, and
- f) effective conduct of meetings.

5.4 Training Modules

5.4.1 Facilitator

- a) Quality Circle - its genesis, concept and philosophy;
- b) role of facilitator, functions of leaders, members and steering committee ;

- c) quality control techniques used in Quality Circle activities ; and
- d) problems encountered by Quality Circles and their solutions.

5.4.2 For Leader

- a) introduction of Quality Circles;
- b) identification of problems - brain storming,
- c) selection of the priorities - pareto analysis,
- d) identification of the causes for the problems - cause and effect diagram,
- e) collection and presentation of data,
- f) identification of the solutions and selecting the best - brain storming and cost benefit analysis,
- g) delegation of responsibility,
- h) effective conduct of meetings,
- j) record keeping and follow-up action,
- k) review of progress against goals, and m) management presentations.

5.5 The most commonly techniques, such as brain storming, pareto diagram, cause and effect diagram used in Quality Circle activities are explained in 5.5.1 to

5.5.3.

5.5.1 Brain Storming - Brain Storming is a group participation technique used by members of Quality Circles right from selection of a problem to identification of all possible causes of a problem. For effective brain storming, the following rules may be followed:

- a) no criticism of any ideas, b) encourage free-wheeling,
- c) equal opportunity to all members, d) all ideas should be recorded, and
- e) selection of the best idea after thorough scrutiny

5.5.2 Pareto Diagram

Pareto Diagram - Pareto Diagram is a decision-making tool, which helps in the identification of the 'vital few' from the 'trivial many' at a glance when incidents of various problems are plotted using vertical bar charts.

5.5.3 Cause-and-Effect Diagram

This is the next step after 'brain storming', in analyzing a problem in detail. It is composed of lines and symbols, representing a meaningful relationship between an effect and its causes.

VI. MANAGEMENT PRESENTATION

6.1 A management presentation is a meeting in which the leader and his Circle members explain the methodology and the solutions they have arrived at, to solve a problem in their work-area, to the Steering Committee. The participants make the presentation with the help of charts, graphs, etc, prepared by themselves. This event represents a most exciting form of participation/ communication and recognition to all.

6.2 The management presentation is important as it shows completed project and make recommendations. Management presentation also promote communication. The Circle gains recognition for its contributions. Morale of the members is boosted by the periodic opportunities to deal directly with the

management.

VII. LAUNCHING OF QUALITY CIRCLES

The management interested in introducing Quality Circles in its organization shall in the first instance commit itself to concept of Company- wide Quality Control (CWQC) or Total Quality Control (TQC) involving development of management attitudes and practices oriented towards defect-free operation in the organization. The management shall take necessary steps to initiate massive training and orientation programmes starting with top management, to develop and adopt scientific quality systems and methods. These programmes should enable the management to look into and correct management controllable deficiencies. Subsequently and at an appropriate time, as may be decided by the management, the introduction of Quality Circles in the organization shall generally follow the sequence of steps given below:

- a) detailed discussions among the top and middle management personnel;
- b) training programmes for the different levels of employees on the concept and working methodology of Quality Circles and circulation of literature;
- c) study the response during discussion with workers, staff and officers whether majority are favourable for launching Quality Circle;
- d) once the response is positive, form a Steering Committee with chief executive as chairman and divisional managers as the members ;
- e) select the coordinator, who will also act as secretary of the Steering Committee;
- f) train the coordinator in all aspects;
- g) ask the coordinator to prepare a report on working methodology which is suitable to the organization;
- j) identify the potential departments from which the members have given their willingness to start Quality Circle activities;
- k) launch pilot Circles (2 or 3) in the potential departments;
- m) train thoroughly the members of these pilot Circles in working methodology, roles of leaders, members and SQC techniques, etc;
- n) closely follow the working of pilot Circles; and
- p) after successful working of the pilot Circles for a reasonable period of 3-4 months, extend the concept to other departments.

VIII. CONCLUSION

Thus in this paper we have seen the methods of Quality Circle formation and implementation. The authors feel that this paper would be a source of guidance to those who seek to form Quality Circles in their concerns.

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