THE QUALITY PROCESS ANALYST PRIMER

> **WITH A LITTLE HELP FROM MY FRIENDS.**
>
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We would appreciate any comments regarding improvement and errata. It is our concern to be accurate.

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IT'S EASY TO GET THE PLAYERS. GETTIN'EM TO PLAY TOGETHER, THAT'S THE HARD PART.

CASEY STENGEL

Teams and Training

Teams and Training are presented in the following topic areas:

- **Team Dynamics**
  - **Types of Teams**
  - **Team Development**
  - **Team Stages**
  - **Roles and Responsibilities**
  - **Team Conflict**
- **Training & Evaluation**

Types of Teams

A participative style of management is the best approach to ensure employee involvement in the improvement process. Today, we are dealing with a work force with higher educational levels that is eager to participate in the decision making process that affects them. There is no better way of motivating employees than to provide them with challenging jobs which make use of their talents and abilities.

In spite of all the obvious advantages, team participation is one of the key areas where most American companies fail. Dr. Ishikawa, a leading Japanese quality professional, said of team involvement, "a people-building philosophy will make the program successful, a people-using philosophy will make the program fail."

The following types of teams are used by industries throughout the world today:

Quality Circles

The concept of circles originated in Japan after WW II. They were so successful in Japan that many managers in the United States tried to duplicate them. The circle is a means of allowing and encouraging people on the production floor to participate in decisions that will improve quality and/or reduce manufacturing costs. Quality, while it is a major consideration of the circle, is only a part of circle involvement. Most ideas worthy of implementation must be justified on the basis of cost savings in some way. Department members voluntarily participate to improve departmental performance. Since membership is voluntary, people are highly motivated to continue the improvement process.

Types of Teams (Continued)

Quality Teams

The quality circle approach has been on the decline in the U.S. for some time. Circles have been replaced by a variety of quality team nomenclatures. The major reasons for the shift appear to be two-fold. First, the term "quality circle" has a strong Japanese connotation. Secondly, most circle projects tend to be employee selected, while most team efforts are management selected, but team directed. The fundamental purpose of establishing quality teams is to improve the internal efficiencies of the company and both internal and external products and service quality. This is done through the efforts of the team members to improve quality, methods, and/or productivity.

Self Directed Teams

A self directed team should select its own leader to interface with other teams and coordinate team activities. Some teams find it helpful to rotate team leadership. At the pinnacle of performance, anyone on the team should be able to lead the team. This type of team operates with minimal day-to-day direction from management. Self directed teams are asked to accomplish objectives within specified time frames that are truly stretch objectives. Management must give the team the maximum latitude possible for achieving their objectives.

Natural Work Team Organization

Natural work team leadership is usually given to the area supervisor. Members of teams come from the supervisor's work force. Outside members, from specialist organizations, can be included in the membership, either as active members or as contributing guests. The facilitator is another important person in this team's organizational structure. He or she is specifically trained to coordinate multiple team activities, oversee team progress, document results, and train team members.

Cellular Teams

Cellular teams are a variant of natural work teams. The name derives from the work cell arrangement in which a number of employees either fabricate or assemble parts. These teams can be led by a supervisor or may be self directed.

Types of Teams (Continued)

Six Sigma Teams

The structure and functional roles of Six Sigma Teams closely follow the description of project and ad hoc teams, with the addition of Black and Master Black Belt support. In many cases, problem solving techniques ranging from basic to technically sophisticated are required.

Improvement Teams

A group of people from various departments are selected to solve a quality or productivity problem. Management may have selected the problem but the team will work until a reasonable solution is found and implemented. For a process improvement team, employees may be drawn from more than one department to look at the flow of material and semi-finished goods required to streamline the process.

Project Teams/Task Forces/Ad Hoc Teams

Members are selected based on their experience and directed by management to look into specific areas such as the modernization of a piece of equipment or solution to a customer complaint. These teams are generally ad hoc and disband upon the completion of their assignment(s). The team can be comprised of management or non-management employees, or a combination of both. For project and ad hoc teams, the boundaries of assignments are usually tightly drawn. However, some task forces may have broader mandates.

Cross Functional Teams

Cross functional teams are made up of individuals who represent different departments or functional areas in the organization. Individuals who represent a department or functional area should be subject matter experts. That is, they should be very knowledgeable about the policies, practices, and operations of their respective department or functional area.

Team involvement promotes sharing of the problem and minimizes "fingerpointing." Representation from various departments also promotes the acceptance and implementation of change throughout the organization. Solutions designed with the active participation of affected departments tend to be technically superior and more readily accepted by those who must implement them.

Synopsis of Team Applications*

Team Type	Structure	Best Applications
Improvement Teams	May be 8 to 10 members from a single department.	Can work on quality or productivity issues. A process improvement team can consist of multi-department membership and focus on process flow and product issues.
Quality Teams	May be 8 to 10 members from a single department.	May initially work on quality topics or overall department performance. Can evolve into self directed teams.
Project Teams	Can have broad or specific member selection. May consist of all or part management.	Works on specific projects such as the installation of a conveyor system. Can also focus on material related items like an improved inventory control system. Usually disbands upon the completion of a project.
Six Sigma Teams	Generally 8 to 12 members with Black Belt or Master Black Belt support .	Works on specific processes or customer based projects of importance. Usually disbands upon project completion.
Cross Functional Teams	8 to 12 members from different areas, departments, or disciplines.	Members are carefully selected. Knowledgeable people are required. Very similar to project teams. Tends to deal more with policies, practices and operations.
Self Directed Teams	6 to 15 members. Generally a natural work area team. May need staff support.	Requires considerable training and exposure. Can be given objectives or develop their own. Some companies select people with cooperative skills to help with success.

Table 3.1 Synopsis of Team Types, Structures and Applications

*   A number of team related items have been adapted from Wortman (2018)[20].

Team Development

The team process can be a highly effective, people-building, potential-releasing, goal-achieving social system that is characterized by:

- A climate of high support
- An open communication process
- Organizational goal achievement
- Creative problem-solving
- Individual achievement
- Commitment

The fundamental purpose of establishing teams is to improve the internal and external efficiencies of the company. This is done through the efforts of the team members to improve quality, methods, and/or productivity. If teams are properly functioning, they will:

- Improve employee morale
- Remove areas of conflict
- Develop creative skills of members
- Improve communication and leadership skills of members
- Develop problem solving techniques
- Improve attitudes of both management and team members
- Indicate to team members that management will listen
- Demonstrate that employees have good ideas
- Improve management/employee relationships

Listed below are some of the reasons that teams have been successful:

- If management has sanctioned teams in the company, this means that management will be more apt to listen to employees and believe they have ideas worthy of implementation.

- The team procedure allows all team members to communicate and exercise creative expression.

- The concept of teams is supported by modern motivational theory:

  - Maslow's higher level of human needs
  - McGregor's Theory Y which recognizes the worth of an individual
  - Herzberg's theory that true motivation is found in the work itself

Team Membership

When selecting a team, upper management identifies those parts of the organization that are associated most closely with the problem. There are four places to look:

- Where the problem is observed or the pain is felt
- Where sources or causes of the problem might be found
- Among those with special knowledge, information, or skill
- In areas that can be helpful in developing the remedy

Often, a cross functional team is assembled to accomplish significant results in a short period of time. The brightest people the organization has to offer should be chosen. What is required are people who believe that two or more minds are better than one, and who will contribute a diversity of experience and knowledge.

Care must be taken when adding new people to existing teams. The rule is not to impose an individual on a team. This can be handled by involving the entire team in the selection process. Sometimes, despite everyone's best efforts, a team member may need to be taken off the team. There are any number of reasons why this situation could occur. The result is a very delicate situation for the team leader or sponsoring manager.

Team Size

A team can consist of members from only one area or can be made up of a group of representatives from different parts of the organization. Each person may have expertise on the subject matter in addition to having an understanding of the processes and activities at hand. It is impractical to include every person who could be involved. Conventional wisdom is that teams consisting of 20 or more (some think over 15) are unwieldy and lose the active participation of all team members. Teams consisting of 4 or fewer may not generate enough ideas. A major change management principle embraces the notion that people will more readily accept and support a change, if they are included in the development of the solution.

Team Resources

Resources are time, talents, money, information, and materials. The development of productive teams will use considerable resources. Newly formed teams want to maximize the resources available to them. The team charter is the best place to establish the team's expectations concerning the resources that will be available to help the team reach its objectives.

Team Charter

A critical element in the establishment of a team is the development and acceptance of the team charter. The team charter defines the task, scope and boundaries in which the team will operate. In one sense, the charter is the team's license to operate. Either organizational leaders or individual teams can create the team charter. An organization's leadership group still must approve the charter.

A team charter is a written document that defines the team's mission, scope of operation, objectives, time frame, and consequences. Charters can be developed by top management and presented to teams, or teams can create their own charters and present them to top management. Either way the top management's endorsement of a team's charter is a critical factor in giving the team the direction and protection it needs to succeed. Teams need to know what top management expects of them. Teams need the authority, permission, and blessing of the necessary level of management to operate, conduct research, consider and implement any changes needed to achieve the expected team results.

A team charter provides the following advantages:

- Eliminates any confusion
- Defines the subject boundaries
- Identifies areas which should not be addressed
- Identifies the deliverable product
- Provides a basis for team goal setting

Initial Project Selection

It is suggested that a newly formed team start with projects that:

- Have broad appeal to team members, co-workers, and management

- Be fairly simple - but not trivial

- Be selected to show some quick benefit (3 months)

- Be within the group's control

- Be within time and resource constraints

The two main activities are learning the teamwork process and completing the project.

Team Building Activities

Three key characteristics of effective team building are mutual trust, respect, and support. Team members need to be coached in the need to trust and support each other. Support involves actively keeping an eye on the other team members and demonstrating a willingness to help each other out when help is needed--even when it might not be requested. Team members encourage each other to stretch beyond their comfort zone by offering advice or assistance when asked or when it is obvious that the fellow team member needs it.

Teams must strive to improve the quality of their teamwork as well as the quality of their output. Teams often have one or more coaches or facilitators. The facilitator is responsible for teaching team building behavior. Team leaders, facilitators, or coaches are also helpful in making certain that the team receives guidance and training as needs arise.

Activities that teams may undertake include:

- **Awareness and education:**

  Additional instruction may be necessary to broaden the understanding of company goals and policies, the improvement process, ways to understand and solve problems, data collection, brainstorming, data analysis, etc.

- **Data collection and presentation:**

  Often to highlight problems or show improvement, bar graphs, charts, and cause and effect diagrams are used. Pareto diagrams are also a very effective tool in data analysis and presentation.

- **Problem solving and decision making:**

  This is the most productive endeavor that teams can participate in. Each time a goal is achieved, it should be documented and the resulting cost savings calculated. The improvement should also be submitted to the company improvement council for recognition and information sharing purposes.

- **Organizing breakthroughs:**

  The best approach is to brainstorm the process from the premise of how things would look if all waste were eliminated and things ran perfectly.

For Effective Team Meetings

- **Develop an agenda: discussion items, attendance, time, place, etc.**
- **Distribute the agenda in advance**
- **Start on time**
- **Appoint a recorder to record minutes**
- **Use visual aids liberally (flip chart, chalkboard)**
- **Reinforce: participation, consensus, problem solving process, etc.**
- **Summarize and repeat key points throughout**
- **Put unfinished items on next agenda or in the "parking lot"**
- **Review assignments and completion dates**
- **Finish on time**
- **Distribute minutes promptly**
- **Critique meeting effectiveness periodically**

The Problem (Project) Must be Defined

- **Problem statements are often vague:**

  - **Poor communications**
  - **Low recovery**
  - **A car runs rough**
  - **Excessive downtime**
  - **Lack of training**
  - **Too much scrap**

- **The problem must be defined using the techniques in the first two problem solving steps (from the following page). Note, there is often a tendency to work on a down stream symptom of an upstream problem.**

- **A gap between the current and desired results is a problem.**

- **A clearly defined problem statement that is <u>measurable</u> should be the initial product. Frequently, a target timetable is included.**