8-25-1995

Quality Systems Development Through People

David Paper
Utah State University

Jim Rodger
Southern Illinois University

Follow this and additional works at: http://aisel.aisnet.org/amcis1995

Quality Systems Development Through People

David Paper
Utah State University

Jim Rodger
Southern Illinois University

Introduction

The purpose of this study is to devise a set of guidelines for organizations attempting to infuse the quality paradigm into their systems development efforts. The study draws upon interviews with three organizations (Qualitech, SGI, IBM) involved in total quality systems development. The three organizations were chosen based on their differences in size (total revenues).

Methodology

The sample was stratified into three groups of organizations (small, medium, large) to enable us to compare and contrast by size. For group one, the size of the organization had to be less than 20 million dollars in gross total revenues. For group two, the size had to be greater than 20 million dollars and less than 2 billion. For group three, the size had to be greater than 2 billion dollars in gross total revenue. Organizations with greater size tend to have available slack resources to be better able to afford innovations (Kimberly and Evanisko, 1981; Barreyre, 1978; Bourgeois, 1981). Slack resources enable a firm to purchase innovations, absorb losses, and explore with R&D expenditures (Rosner, 1968). However, there exists some empirical evidence which states that smaller firms are more flexible and tend to become established in an industry through new product innovation (Ettlie, 1983). Analysis of the interviews should provide a more specific set of quality guidelines for systems development projects based on the size of the organization in total revenues. For a preliminary investigation of TQM initiatives in organizations, our goal was to interview one organization in each category. Only three organizations needed to be contacted as each agreed to participate.

Data Analysis

Data were analyzed in terms of management style, team involvement, team structure, top-level involvement, and corporate evolution as depicted in Table 1 (tables are presented in Appendix A). Interviews were based loosely on a set of open-ended questions. Each

Quality Systems Development Through People

respondent was asked to frame each question in terms of a specific quality initiative related to a systems development project. Review of company documents, and follow-up telephone calls were included to resolve inconsistencies.

Discussion

Consistent with the interviews, a primary measure of quality success is customer satisfaction. Quality means developing products and services which truly surprise and delight the customer (Peterson and Hillkirk, 1991). An organization is producing a good or service for a customer (Drucker, 1954).

Total involvement is also critical. A successful quality program requires an enterprise-wide commitment dedicated to continuous improvement of the processes involved in producing a good or service (Imai, 1986; Zultner, 1993). According to Imai, total involvement includes everyone--top management, managers, and workers. However, worker involvement requires a paradigm shift in the traditional style of management. Managers must act as facilitators rather than autocrats. Creative input from line workers must be nurtured and encouraged. We found that all three organizations believed that total involvement of workers, project managers, and top managers was important for successful TQM implementation. Discussions with respondents from the three organizations confirmed that communication, training, and employee involvement are critical to success. Notwithstanding, training monies may not be available, communication channels may be blocked by bureaucracies, employees may not be properly encouraged to participate, and the existing management team (and employees) may be resistant to change. Dealing with human problems is very difficult, but must be faced to ensure successful.

Guidelines

G1: Identify the domain of the project.

G2: Identify and sell key players impacted by the project.

G3: Encourage and reward customer interaction to verify needed modifications.

G4: Build a team composed of workers from each functional area impacted by the project.

G5: Choose managers and project leaders with the skills to excel in an empowered environment.

G6: Justify modifications based on a "value-added" rather than a "cost/benefit" approach.

G7: Build mechanisms to foster data and technology integration.

G8: Choose a project manager with political clout and skills that fit the business vision.

G9: Secure top management commitment and involvement for the project.

G10: Establish a proactive philosophy for dealing with change.

G11: Plan for change through people.

The eleven generic guidelines provide a direction for U.S. organizations involved in implementation of TQM initiatives. The guidelines would also work well for dealing with most innovations and changes in organizational routines.

Organizations that are bureaucratic and/or in a downsizing mode have special problems when it comes to dealing with change. Table 2 provides suggestions for organizations in one or both of these situations. This table should be consulted in conjunction with the generic guidelines as they are still applicable.

Companies in the downsizing mode must retain employees that "add-value" to the organization and that can adapt to change. Training these employees should also be a priority. Empowerment is critical since less employees must now do the same amount of work. Funds for training should be channeled in from monies released from the downsizing effort. The project champion must be politically smart and be able to thrive in an environment of change. The major goal of downsizing should be to build customer involvement.

In a bureaucratic organization, managed empowerment won't work (in the long-run). Therefore, restructuring, downsizing, and/or reengineering must be a high priority. Managers and employees must be trained or retrained to deal with change. Training is even more critical as the structure of the company is not conducive to empowerment and TQM. The project champion must have access to top management to promote the project. A top priority must be to reduce bureaucracy. Otherwise, empowerment may not succeed.

Organizations that are in a growing mode (like SGI) have special advantages over bureaucratic organizations. However, they may also encounter special problems as depicted in Table 3. A problem encountered by growth companies is controlling expansion. Dealing with change is commonplace in these firms, but they must approach empowerment proactively.

When hiring, an emphasis should be placed on bringing in workers with little or no experience with traditional ways of conducting business. Entry-level people would be ideal because they have not picked up bad habits through other experiences. Growth provides opportunities. Hence, a firm in this situation should be opportunistic when it comes to empowerment. Budgets and strategies can be adapted easier in this type of environment. MIS managers must thereby push the idea of empowerment to top management. One way is to link empowerment to improved quality. Implementation of quality systems can thereby be justified as part of the organization's growth strategy.

Growth can also bring new problems. As companies grow, there is a tendency to build bureaucracies which may alienate customers. Therefore, growth companies should place priority on continuously engineering business processes as expansion continues. In other words, reengineering may not be necessary as growth companies are expanding operations. However, engineering business processes is critical to accommodate growth.

In small, stability-oriented organizations, dealing with change is not difficult as the number of employees is low and bureaucracies are almost non-existent. Managing an empowered environment is relatively easy as the head of the organization can conveniently interact with employees on a continuous basis. Creating a conducive environment for empowerment is the responsibility of the head of the organization. If that person does not wholly support empowerment, it will not work. Quality must be linked with customer satisfaction. In a small company, the customer is key. If a single customer is dissatisfied, the company could be in trouble because small companies typically have few customers. Customers should be continually consulted to find out whether their requirements are being met.

Conclusion

The study identified a set of generic guidelines to facilitate implementation of TQM initiatives in systems development projects. In addition, a set of specialized guidelines were developed to assist organizations with special problems in terms of size and corporate evolution. The guidelines were developed from interviews with three organizations and the quality literature. In sum, top management involvement, empowered workers, customer satisfaction, open communication, and a strong project champion greatly enhances the chances for the successful implementation of TQM initiatives. Larger organizations must become more sensitive to their special problems. They must find ways to circumvent or eliminate bureaucracies to involve key people in the TQM effort and develop closer ties with their customers.

references available upon request

Appendix A

Table 1. Interview Results by Organization

	Qualitech	SGI	IBM
Managed Empowerment	_Supportive _Training important _Moderate delegation	_Very supportive _No training _High delegation	_Supportive _No training _Delegation
Autonomy	_Moderate accountable	_highly accountable _Slightly controlled	_Accountable _Controlled

	_Slightly controlled _Training important _Open communication _Cross-functional team	_Low training _Open communication _Cross-functional team	_Low training _Communication fair _Cross-functional team
Championship	_Access to IT resources _Politics minimal _Work with IS team _Important for success	_Access to IT resources _Little political clout _Work closely with IS _Important for success	_Access to IT resources _Have political clout _Work with IS team _Important for success
Top-level Commitment	_Very high	_Very high	_Weak
Corporate Evolution	_Small and stable	_Rapid growth	_Downsizing
Customer Satisfaction	__Very important _Involvement moderate	_Very important _Involvement high	_Critical _Involvement very high
IT Configurations	_Distributed C/S _Partial-integrated data	_Distributed C/S _Partial-integrated data	_Mainframe _Partial-integrated data

Table 2. Specific Guidelines for Bureaucratic Organizations

	Downsizing	Bureaucratiic
Managed Empowerment	_Release employees and managers that do not fit the new philosophy _Retain those that do & train	_Restructuring and reengineering must be a very high priority _Training essential
Autonomy	_Critical - less can do more _Funds released from downsizing must be channeled into training	__Autonomy won't work _Must reduce bureaucracy by downsizing, restructuring, etc.
Championship	_Champion must be able to operate in an environment of change _Political savvyis critical	_Champion must have access to top management _Political clout is very critical

Top-level Commitment	_Essential	_Essential
Customer Involvement	_The major goal of downsizing should be to enhance involvement	_Must reduce bureaucracy or find way to open communication channels

Table 3. Specific Guidelines for Growth-oriented and Stability-oriented Organiations

	Growth	Stability
Managed Empowerment	_Hire "untainted" workers _Managers must control expansion	_Foster creativity _Easy to manage
Autonomy	_Seize opportunity	_Built into system
Championship	_Link quality with growth	_Link quality with customer satisfaction
Top-level Commitment	_Secure buy-in	_Built into the system
Customer Involvement	_Must be sensitive to separation from customer due to growth	_Foster one-on-one interaction