Total Quality Management In Construction Essay, Research Paper

The major new element in world market competition is quality. During the 1970?s and 1980?s, the Japanese and their U.S. companies

demonstrated that high quality is achievable at lower costs and greater customer satisfaction. It was the result of using the management

principles of total quality management (TQM). More and more U.S. companies have demonstrated that such achievements are possible

Using TQM as a new way to manage. Such companies also found that they were recognized with everyone pulling in the same direction.

Improvement had become a way of live. Improving competitive position and profit has always been the responsibility of management.

Before the 1980?s, U.S. management was broadly successful. Until then the dominant management model was that of the autocrat.

Management, primly senior management, decided how the business was to operate, including what the policies and objectives were; how

it was organized; what jobs were established; and how should they be done. It was an unquestioned axiom that if everyone did what the

upper management required, the business would be successful. Organizations are composed of the people in them and the managers who

lead them. People respond strongly to leadership expectations and rewards. If they are given little power in their jobs, they have little

interest in improving them. If leaders exhort the members for better output but reward (promotions, bonuses, recognition) for mostly

higher output, they get the behavior they reward. Quantity over quality has been a common management philosophy in the United States.

The first step in implementing TQM requires the an upper-management change in both philosophy and behavior. Managers must adopt the

objectives of customer satisfaction and continuous improvement. They must implement the change to achieve these objectives through their

personal and continuous involvement and in the reeducation of everyone in the organization in TQM principles and practices. The past

philosophy of management can work reasonably well if a company dominates world markets. When markets become complex and

worldwide with more and stronger competitors, a new model is needed. Asian companies and some in the United States have

demonstrated that there is a more effective way to manage, quite different from the autocratic model: It is employee involvement in

quality improvement. These companies also introduce high quality at lower cost as a competitive element, thereby changing the

competitive equation for everyone. TQM is a way to continuously improve performance at every level of operation, in every functional

area of an organization, using all available human and capital resources. Improvement is addressed toward satisfying board goals such as

cost, quality, market share, schedule, and growth. It demands commitment and discipline, and an ongoing effort. The quality management

process includes the integration of all employees, suppliers, and customers, within the corporate environment. It embraces two underlying

tenets: Quality management is a capability which inherent in your employees. ?. Quality management is a controllable process, not an

accidental one. The idea of an integrated, human-orientated systems approach to management was successfully used by W. Edwards

Deming in the 1950?s. Deming told the Japanese that they could become world-class leaders if they followed his advice and they did. He

lectured top Japanese business leaders on statistical quality control. He proposed a system that would change the approach to management

in many ways. Today, this system is the pillar of TQM philosophy. These components make up the strategic portion of the quality pyramid

(figure. 1). There are mainly eight functional elements from which other concepts flow. These are: 1.Organizational vision Organizational

vision provides the frame work that guides a firm?s believes and values. The gist of the corporate vision should be a simple, one sentence

guide or motto that every employee knows, and more important, believes. If well crafted, the vision statement can serve through a torrent

of change in product and service technology. The strategic vision needs to consider both the external customer and the employees, but

should lack a defining or differentiating phrase between them. For example, General Motors provides all employees a card with its

strategic vision, including a cause-effect diagram that indicates the importance of team work (figure 2). Simply stating a vision is not

enough. It needs to be demonstrated by the actions of the executives, managers , superiors, foremen, and individuals. It should be done

continuously in all their actions and initiatives. Moreover, deliberation must be exercised in developing these goals and strategies. They

must reflect the values and culture of the work force. While top-management commitment is essential, managers should realize when to

lead and when to get out of the way. In a sense quality management is management from the bottom up. An atmosphere of responsibility

must be created toward the customer for whatever product is produced or service is rendered (fig.3, below).

Figure 3 Strategies in Successful Vision Implementation Demonstrate commitment. Inform suppliers. Maintain a constancy of purpose.

Take a long-term view. Create more leaders. Establish meaningful goals. Examine your mission. Discuss TQM with peers. Behavior and

action must be consistent with goal. Build awareness.

2. Barrier Removal It is inevitable that change will be resisted. In fact, a great deal of effort in quality management is expended in

overcoming such resistance, usually by allowing change to come from individuals directly involved, rather from management. The whole

idea of continuous improvement leads to continuous change. Some of these barriers are: ?. We know what they really want (without

asking them). ?. Quality is not a major factor in decisions-low initial cost mentality prevails. ?. Creative accounting can increase corporate

performance. ?. Can?t manufacture competitively at the low end. ?. The job of senior management is strategy, not operations. ?. Success is

good, failure is bad. ?. If it isn?t broke, don?t fix it. ?. The key disciplines from which to draw senior management are finance and

marketing. ?. Increase in quality means increase in cost. ?. Thinking that time, quality, cost are the worst mutuality exclusive, at best we

can only choose two out of three.

The following are the steps to barrier removal: I. Identify barrier. As seen above some of these barriers may apply effecting progress. II.

Place into categories. Related barriers and their systemic causes may now be analyzed. Categorization may be facilitated by using either

cause-effect diagrams or quality function deployment. III. Establish priority. An objective process that is not influenced by management or

hidden agenda must be developed. At this stage barriers are judged on their validity in accordance with the severity of the problem. IV.

Problem solve. This means more than symptoms removal. Sick organizations do not recover for the long term if the symptoms are masked.

It is vital to address the root of the problem. The elimination of one barrier may solve many problems for example poor communication

between management and staff. Keep in mind that analyzing the problem should include estimates of resources required for it solution.

V. Goals and strategies for resolution. Resolution of problems may entail goals over a period of months or years. Goals should be realistic

and attainable with the given resources. Strategies ensure that goals can be accomplished. Bear in mind that numerical goals as such may

not be what is required. Numerical goals may also limit the amount of growth, particularly in organizations used to working up to an

average.

3.Communication Communication is the glue that binds all the techniques, practices, philosophies, and tools. Communication may be

written, verbal, or nonverbal. Understanding and refining skills for each main type communication is an ongoing process for everyone.

All forms of communication involve four elements: the sender, the receiver, the message, and the medium. The medium is the method of

delivery, and can effect the message. It was said that “the medium is the message”, referring in part to the filtering effects that can

happen to the message and how personality factors may influence our understanding (figure. 4). VI. Written Communication. Office

memos and reports are the result of hundreds of hours (studies indicate anywhere from 21% to 70% of office workers? time is spent in

manipulating written information) of work, and their final form should be worthy of spending some time to get words right. The use of

white space and graphical elements such as charts and figures enhances the readability of any written piece. Given the vast amount of

time spent on reading and creating memos, letters, proposals, and the like, the byword on written communication should be more is

better, and the less is permanent (memos sent electronically, faxes, hand notes on the bottom of the letters, rather than typed, recorded

reply) the better. VII. Verbal. Verbal communication takes place in many different settings, and the form of the communication will vary.

One sort of vocabulary may be used to address shareholders and a different idiom may be used altogether when chatting with

construction workers. The skills principally lacking in verbal communication are public speaking and small group interactions. Public

speaking scares people to death. This fear may be overcome by training(organizing and practice), videotaping the presentation (to review

latter), and practice(on small group to build confidence). Small group interactions are essential to buildup comfort and ease among the

group. It will provide a sense of team work and it is vital to have small talk among the team. VIII. Nonverbal. Humans infer a great deal

of information from nonverbal clues. This non verbal clues includes body language as well as things as dress for success. Psychologists

believe that nonverbal clues lead to “gut feels” about how to interact with another person. Despite the similarities of nonverbal

communication, there are cultural differences, and is probably most important to understand these, rather than reading individuals body

language. It is easy to fall into the trap of overanalyzing nonverbal clues and infusing them with meaning, when, for example, someone

may be hard of hearing or near/far-sighted rather than being inattentive (or too attentive).

4.Continuous Evaluation Feedback is essential to continuous improvement. How else would we know if our goals are being reached?.

These feedback mechanisms may be simple oral or written reports, information systems, or complex automated statistical analyses

integrated with our expert systems. The key is to receive the information in time to allow initiating corrective action. For example, in

construction feedback from engineers, subcontractors and so forth can help us as managers to find new ways to reduce cost and schedule.

Feedback may also help architects to find the best way to construct a building and therefore effecting the design. We also should

understand and separate assessable causes from chance causes. Assessable causes have distinct reasons for there existence, while chance

causes are those causes that we have no control over.

5.Continuous Improvement Unlike innovation, which require great resources, and no small amount of serendipity, continuous

improvement is easier to manage and utilize everyone?s talent. Japanese companies have used this idea for some time, and call this

approach kaizen. This idea fits hand in hand with team building approach. Kaizen and innovation are compared in figure 5 below. Figure

5. Improvement versus Innovation Continuous Improvement Innovation Effect long term and long lasting but undramatic. Shot term, but

dramatic. PaceTime frame Small steps.Continuous and incremental. Big steps.Intermittent and nonincremental. Change

InvolvementApproach Gradual and constant.Everybody.Collectivism, group efforts, systems approach. Abrupt and volatile.Select few

“champions.”Rugged individualism, individual ideas and efforts. Mode Maintenance and improvement. Scrap and rebuild. Spark

Conventional know-how and state of the art. Technological breakthroughs, new inventions, new theories. Practical requirements. Requires

little investment but great effort to maintain it. Requires large investment but little effort to maintain it. Effort orientationEvaluation

criteria People.Process and efforts for better results. Technology.Result for profit. Advantage Works well in slow-growth economy. Better

suited to fast-growth economy.

To reduce cost and time and increase productivity, in any industry, the focus must be projected on the process that produces the product.

Improving the process in construction, for example, reduced or may eliminate costly change orders and therefore reduced complexity and

time. Through inspection and analysis of the process, everyone shares a common learning experience and the accumulated knowledge and

understanding of the process become the basis for improving it.

Precepts of Quality Improvement ?. Quality leadership must begin with top management. ?. The most important aspect of quality is

identifying the activities within the organization that effect quality. ?. Written procedure are one of the necessary communication media

by which the management functions of directing and controlling are exercised. ?. One of the most critical activities in quality

improvement is preparing a clear, concise description of the services to be acquired. ?. The cost, time, and effort devoted to evaluating

and selecting suppliers must be commensurate with the importance of the goods and services to be procured. ?. Quality audits must

determine the adequacy of, and compliance with, established policies, procedures, instructions, specifications, codes, standard and

contractual requirements. Quality audits must also assess the effectiveness of their implementation. ?. The simple objective of most quality

audits is to gather enough reliable data through inspection, observation, and inquiry to make reasonable assessment of the quality of the

activity being audited. ?. the foundation of quality control is having timely and accurate information so that systems that are not capable

of producing consistent quality can be identified and improved. ?. An effective quality cost program can help the management team to

allocate strategic resources for improving quality and reducing costs. ?. Productivity, profit, and quality are the ultimate measure of

success of the production system.

6.Customer/Vendor Relationship The “hearing the voice of the customer” has become a key phrase in the past few years. This would seem

to be a obvious point but it?s not. After world war II, The United States was the only major country that did not have a devastated

economic infrastructure. Therefore, it was able to produce items of any quality and sell them. Industries were internally driven and not

customer driven. As the glob markets grow, new competitors with new technologies approached these markets providing better quality

products and involving the customers. This approach worked miracles for these new industries and valuable lessons should be learned

from this. Here are some strategies for improving customer and vendor relation: ?. Link organizational vision to customer satisfaction. ?.

Reward suppliers. ?. Move to a single source. ?. Minimize the overall number of vendors. ?. Identify the internal and external customers. ?.

Identify end users and distributors. ?. Establish routine dialogue with customers. ?. Involve the customer in planning and development.

Keep in mind that vendors must be qualified and have policies that are compatible with yours. Viewing these vendors as partners, rather

than adversaries leads to the ability to implement successfully such cost-saving measures as just-in-time, whereby materials arrive as

needed to the construction site.

7.Empowering The Worker

Empowering the worker means enabling the worker to achieve his or her highest potential. For most American companies, this is new,

and may be the most powerful and useful concept in quality management. Allowing and facilitating workers to achieve their highest

potential may seem obvious or impossible, but in fact it is neither. Empowering requires turning the organizations chart upside down,

recognizing that management is in a place to aid the worker in overcoming problems they encounter, not to place new roadblocks on the

way. Empowering strategies may include: I. Ownership. A key strategy in empowering employees is to allow them ownership of tasking,

project, or division. Ownership implies trust and requires a delegation of authority commensurate with the responsibility of the task.

Ownership can also be granted to a team. Ownership also demands that the final resolution of the tasking be in the hands of the owner.

II. Value all contributions. Whether or not we appreciate them, it is important to enhance self-esteem of the contributor to accept their

contribution and evaluate it. III. Every one has a value. If they didn?t why would they be employed? Treat everyone with respect. All

work has dignity to it. IV. Teams must own problem. Teams are a waste of time if management vetoes or substantially changes their

recommendation. If management is unable to trust the recommendations that come from the team, then management fear rules, and will

spiral to lower and lower productivity. V. Delegate authority to the lowest possible organizational level. Constantly ask: why should I do

this? If you have hired competent people, let them do there job. No one knows about the job than the person directly involved with it.

8.Training

The outcome of training is modified behavior. It may be enhanced interpersonal skills or specific manual skills, but there is a direct,

identifiable modification. Training need not consist solely of traditional classroom instruction. Employees can train other employees very

effectively. A company-wide curriculum should be developed that address the needs of each department. Courses should be just long

enough to be effective. Anything over three or four days is unlikely to immediately be absorbed into daily work habits. Immediate

reinforcement of the training is necessary to be effective.

Bibliography 1. R. Stein, The Next Phase of Total Quality Management., Macel Dekker, Inc.,1994. 2. T. Cartin, Principles and Practices of

TQM., ASQC Quality Press.,1993. 1. W. Schmidt and J. Finnigan, TQManager., Jossey-Bass Publishers., 1993. 1. B.Brocka and S. Brocka,

Quality Management: Implementing The Best Ideas Of the Masters. Irwin, Inc.,1992. 2. H. Kerzner, Project Managment., Van Nostrand

Reinhold.,1992.

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