

The Origins And Development of Quality Initiatives In American Business

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*"We arrived in different ships,
but we're all in the same boat now."*

The real beginnings of "Quality Initiatives" in the United States came after W. Edwards Deming, Joseph Juran, and others returned from Japan in the late 1950s. These men and their colleagues had answered a call from the United States Government to assist in the reconstruction of Japanese industry following World War II. Their techniques and methodologies had raised the industrial output of Japan to heights not previously envisioned. Along with this huge increase in industrial output was the understanding that Japanese made products were better than similar products produced in the United States. That, somehow, the Japanese culture had contributed to a level of quality heretofore not seen.

INTRODUCTION

American industries had begun to feel the impact of Japanese manufacturing by the mid 1980s. Pre-war imports from Japan had, noticeably, lacked quality. The goods were shoddily produced, had not warranties, were unreliable, and "cheap" in every sense of the word.

The quality of Japanese goods arriving in the United States and Western Europe during the late 1970s and into the 1980s was higher than anyone had expected. The rules set down by Deming and Juran had permitted the manufacturing of goods of superior quality. The Japanese began to be recognized, world-wide, for their output of electronic goods, of automobiles, and other sectors of the economy that required very detailed hands-on work. In most cases, robots rapidly replaced the hands-on applications and computer directed production became the norm. Most American industrial output was mechanized, but not as yet computerized nor was the manufacturing output heavily robotic.

PRECURSORS TO THE QUALITY INITIATIVE

Practicing managers, management theorists, and teachers of management at the nation's colleges and universities began to recognize that changes would be necessary in management as a discipline if the United States, in particular, was to keep up with the quality production seen first in a rebuilt Western Europe and then in Japan. A number of ideas were

put forth that were, ultimately, to become the underpinning of what was to be the American quality initiative.

The first well known "new management" technique, developed in the late 1960s by Peter Drucker, James Odione, J.D. Batten, and others was "Management by Objectives" (MBO). The purpose and objective of MBO was to motivate managers to really accomplish something. "Managing by Objectives" permitted managers to set down for themselves a strategic plan. Implementation of this plan was the identification of what the manager, in concert with senior management, could realistically accomplish in a given time period. David N. Chalk carried this idea forward in his, "Management by Commitment." Chalk suggested that MBO did not go far enough. Much of what should have been achieved had not been accomplished. He strongly advocated MBC. The "commitment" was in the form of a written contract. There were penalties if the contract was not met. Managers working in a MBC environment were encouraged to keep senior management well aware of any problems that might hinder the meeting of the specified goals and objectives. There was a "no surprise" management style in MBC oriented companies.

Peter Pyhrr wrote his groundbreaking book, Zero-Base Budgeting: A Practical Management Tool for Evaluating Expenses, in 1973. ZBB quickly became a management buzzword and Pyhrr's book rapidly became the most purchased business book in history, to that time. The underlying advantage of Zero-Based Budgeting was that the managers had to be given the authority and the responsibility to manage their own budgets. Line item budgets were no longer necessary. Managers, working under ZBB, requested a "least-cost" budget. This was a budget that permitted the manager's functional area to meet its mission, but at a minimum level required to discharge that mandate. The technique effectively raised the intuitive thinking of managers. It had the effect of reducing operating expenses, overall. An additional benefit came from the mental exercises that determined which programs would go and which would not. It permitted excess funds to be redirected to the improvement of product quality and the improvement of the firm's business processes.

While American managers and American industry was still trying to digest ZBB and the changes that it wrought another management idea came forth. Professor William Ouchi, then teaching at the University of California, Los Angeles, published his, Theory Z: How American Business can meet the Japanese Challenge, in 1981. This was the first widely read recognition that the Japanese were doing something right. It was the first recognition that American industry had not understood the thrust of the Japanese effort to produce quality products at an affordable price. These ideas, then, became the floor for what would become the American Quality Initiative in the late 1980s and has held forth strongly into the new millennium.

THE EVOLUTION OF

BUSINESS QUALITY PROGRAMS IN THE UNITED STATES

If ZBB was the management buzzword of the 1970s and early 1980s, "Total Quality Management" (TQM) was the first quality buzzword. TQM became a new way of life in American industry. Companies all over the United States began to learn how to apply the Deming-Juran ideas of quality in their own product areas. Book publishers were inundated with TQM oriented manuscripts. Dozens of books were published on quality. Like ZBB before it, TQM was offered in all sorts of industries, service and manufacturing. One began to hear of TQM in colleges and universities, TQM in health care, TQM in service industries. TQM was everywhere. The idea of quality that TQM advocated was not often understood. Quality was now to become everyone's job. Ford Motor Company went on television to advertise that "Quality was Job One." The new Quality Initiative required, ideally, that quality began at the lowest level in the corporation and rose to the top, while, at the same time, quality was pushed downward in the organization.

Each employee on an assembly line, for example, had to become "his brother's keeper." Since everyone's job was "quality", it was necessary to repair the damage done by another that may not have completed the job. Maybe someone else had to tighten the screw to avoid the quality control office from sending the product back to salvage and rework. Teamwork became the rule, rather than the exemption. Other "managerial" words began to creep into the vernacular of corporations: "empowerment," "customer service," "quality circles," etc. Ford Motor Company at one time had nearly 5,000 suppliers. Each product delivered to Ford had to be inspected at the inbound point. Inbound Inspection was a department unto itself. It employed hundreds of inspectors spread across tens of sites, all of which were geographically dispersed. Under TQM – Job One, suppliers had to agree that their products would meet certain specific quality requirements agreed to by both the supplier and by Ford. If the supplier agreed to provide Ford with only the highest quality of goods, then Ford would not perform inbound inspection. Only about ten percent of Ford's vendors would or could commit to that level of excellence. The resulting savings in reducing the number of inbound inspections and the reassignment of quality inspectors saved Ford millions of dollars over the past two decades.

The Total Quality Management ideal was evidenced in a number of ways. Those companies that implemented a TQM, or, as some called it, TQMS, for Total Quality Management System(s) program, quickly discovered that "quality" was only one part of the overall Initiative. There were, in fact, ten clearly identifiable aspects of TQM, each of which was a stand-alone attribute of Total Quality Management, and/or, all subsequent quality programs like the Malcolm Baldrige Award Program, ISO 9000, Six Sigma, and the host of programs and theories accompanying any quality installation. They include, but are not limited to "Benchmarking," Business Process Re-engineering "BPR," Continuous Quality Improvement (CQI), and "Continuous Process Improvement" (CPI). Each of these represented a change in

management style or, in some case, a change in corporate culture. These are discussed below.

Customer Involvement:

The "Q" in TQM includes the full product/service life cycle. This demands that the customers' needs, desires, and requirements be fully integrated into the design and development of the products or services. This argues that the customer is an equal partner in the cycle. It follows then; that customer requirements can be directly converted into specific design and definite production and delivery schedules. These issues can be addressed in a team dedicated to this end. The Japanese utilize "Quality Function Deployment Teams" (QFDT). This fully integrated approach results in better designs, fewer design changes, faster production, earlier delivery, and with an overall higher quality.

Management Responsibilities:

Under TQM, quality is accepted as everyone's job, but it goes beyond that. There must be a perception that everyone has a commitment to quality. This is really a link-back to the "Management by Commitment" (MBC) doctrine of the late 1970s and early 80s. It remains, however, management's firm responsibility for the highest perceived as well as actual quality. Management has as its primary task under TQM to acquire participation and commitment from both the organization's internal and external customers. Participation, involvement, and commitment are tied together as management responsibilities for producibility.

Company Cultural Change:

The toughest part of implementing any quality program in any company or institution is changing the organization's culture. The chief executive officer must be committed to change, not just give lip service to it. The core to TQM or, for that matter, any of the several quality programs, is the buy-in of senior management to change the culture of the organization to support the individual's pursuit of quality.

The cultural change requires a complete reorientation of job descriptions and duties. It requires a collaborative rather than an adversarial work force. The phrase, "it's not my job," cannot work in a quality environment. Quality programs cannot work where employees refuse to be "their brothers' keepers." This collaborative working system is difficult to implement, but not impossible to achieve. It involves certain basic changes to the traditional American work ethic of "rugged individualism." It suggests that the individual employee must become a partner in the enterprise and be just as concerned about quality as the CEO. Quality really does become everybody's business.

Quality requires new thinking about the relationships that have traditionally existed between labor and management. It requires a new direction for American industry; a new partnership must be forged between management and the shop floor, between management and staff, and between line and staff management.

Statistical Orientation:

Statistical thinking is a basic element in all of the quality programs, but especially in Total Quality Management. Statistics has become the communication tool of TQM. Several different statistical concepts are invoked for the purpose of eliminating surprises. Statistical Process Control (SPC) and Statistical Quality Control (SQC) are evaluation techniques used to measure the increase in quality output. The statistical controls guide both management and production processes. "Statistical thinking strives to separate the common causes of variation from the special causes so that both can be controlled and improved." Statistical controls are necessary in order to measure the differences in improvement. They are required to accurately measure the changes brought on by installing any quality program, but especially, TQM.

Continuous Measurable Improvement (CMI):

Each process, regardless of whether it's a management, engineering, marketing, production, or support function is subject to continuous improvement that can be measured based on the statistical controls discussed above. The idea of cmi (always expressed in lower case to indicate that it is a process rather than a program) is to increase the satisfaction of both the internal and external customer bases. The long-term goal of cmi is to increase satisfaction, while lowering employee time and material cost. This process has to become a way-of-life for each member of the organization, top to bottom, and bottom to top.

Employee Empowerment:

TQM describes individual participation and commitment as "empowerment." Each employee becomes, at the same time, both a producer and a consumer. All individuals must be granted the authority to make quality decisions at their own levels of responsibility. The employees must demand and deliver products or services at the highest possible quality. This empowerment for high quality flows down through the organization and out the door until the product reaches the end user. Perfection is the goal, anything less is or should be unacceptable.

Individual commitment to and participation in the quality concept allows an employee to reject a product that he or she perceives as having fallen below that goal of perfection. It stops products from being delivered in order to make schedules when it is understood that the customer will return the item for repair, or in some cases, for completion. The empowered, committed, participative employee will make every effort to satisfy the customer, regardless of what that may entail.

Employee empowerment, individual participation, and committed management represents a whole new direction for American industry. This becomes an entirely new way to manage the quality function. It changes the mentality of the worker. It places quality ahead of other objectives such as cost or speed of delivery. Quality becomes the primary objective.

Vendor Quality; Supplier Integration:

Quality must begin outside the company, flow through it, and exit to the end user. Vendor quality, therefore, must be assured. When the supplier is involved and brought into the quality process, the supplier becomes an integral component of TQM or whatever quality process is being used. If the actual quality of the materials is "perfect" then the need for receiving inspection is eliminated. The materials arrive when needed, need not be inspected, and are immediately inserted into the manufacturing process. The Quality Initiative calls this process "Just-In-Time" (JIT). This approach calls for a commitment on the part of the supplier that results in lengthy, exclusive (single source) agreements. It demands that suppliers adopt their own Quality Initiative. It becomes an upstream – downstream partnership.

Teamwork:

Teamwork is the essence and strength of all quality programs, but especially of TQM, not in the sense of the 1980s idea of "Quality Circles", but as a whole new approach to teamwork. Teams can be created along functional lines or the teams can be cross functional. Teams can be problem solving or they can be innovative. They can even be both. These teams can become quality deployment teams. In every sense, they are teams with multi-departments represented. Production can learn to work with marketing, engineering with sales. Outside departments become partners with production. Vendor representatives can serve on "satisfaction teams."

The entire operation is based on teamwork; working together to achieve mutually agreed upon goals. Teamwork permits the creation of a fully integrated management system with quality as its overriding goal.

Competitive Benchmarking:

This feature of all quality programs is defined as the continuous process of measuring products, services, and techniques against the perceived leaders in the field. The basic idea is to gain a competitive advantage through a strict and detailed comparison of your company to your competition. If you can't be better, can you at least be different? These differences can be seen in companies like FedEx and UPS. Both are carriers of small packages. FedEx relies on its reputation for being the "best." The story is told that management expert Tom Peters was so used to having FedEx answer the phone on the first ring that when he called and the phone was not answered immediately, he concluded that he had misdialed. UPS, on the other hand, does not want to be a FedEx. They are different. UPS is a certified ISO 9003 service supplier. The company adheres to the ISO standard as set forth in the ISO Quality Manual. Unfortunately, the customer service staff at UPS has not been brought under the "quality umbrella." Most of them are unaware of what the ISO Certification means. Hence, quality falls down. It is not enough just to write the numbers on your trucks, it has to be written in the hearts and minds of the employees. Benchmarking suggests that we should learn as much as we can about our competitors,

including trying to understand their strategies. If we emulate the best in our industry, if we discover their secrets, we just might become better than they are.

Cycle Time Reduction:

Under all of the quality programs, cycle time is defined as the length of time it takes to deliver a product or service, from inception to customer acceptance and satisfaction. All of the current quality programs, as a by-product, reduce cycle time. Close cooperation among the various components of quality programs will reduce cycle time. There can only be quicker response, faster production, and higher customer satisfaction. Shorter cycle time (sometimes called "fast cycle time") will decrease costs, increase management effectiveness, and ensure overall satisfaction with the product or the service.

Quality, in all of its manifestations, is truly the wave of the future. Quality has applicability in every type of organization. When manufacturing and service companies, government and education, realize that customer satisfaction must become the highest goal of all organizations, then will the quality of American goods and services match or exceed the perceived quality of products and services made or offered offshore.

To accomplish this, we must begin to think along new lines, we must come to believe that, "quality involves living the message of the possibility of perfection and infinite improvement, living it day in and day out, decade by decade."

ISO 9000: AN OVERVIEW

ISO 9000 is a universal, quality assurance (not quality "control") management system endorsed by European Union and many other countries, particularly those in Southeast Asia. It is a checklist of functions, policies and rules considered necessary to assure the quality of a company's products and services. The ISO 9000 family of standards was designed to be a generic process that can be used by manufacturing and service companies, worldwide.

The ISO 9000 family of standards sees quality as a process. Thus, the standard examines quality from beginning to end-user and considers service to be a part of the overall standard. ISO 9000 was developed by the International Standards Organization, and details about the scope and implementation of the standard were established in 1987. The standards have been revised several times since then, most recently in 2001.

The ISO standards have been broadened over the last few years to include issues dealing with non-quality. As an example, there is a set of environmental standards now used worldwide under the general heading of ISO 14000. A brand new ISO standard has just been announced that will deal with "Knowledge Management" as a distinct discipline. This standard was codified and published in late, 2002.

SIX SIGMA

The most recent innovation in quality assurance is known as "Six Sigma." Six Sigma takes the statistical elements present in Total Quality Management and in ISO 9000 and raises them to the most important piece of quality. The overall goal of Six Sigma is bottom-line improvement. As such, it differs little from the other techniques. The proponents of this methodology claim that a full-scale implementation of Six Sigma will do at least the following:

- Increase productivity
- Reduce cycle time
- Highlight reduced defects
- Have high levels of outgoing quality
- Standardize improvement efforts within the organization
- Simplify improvement efforts, i.e., Business Process Engineering (BPR)
- Improve customer satisfaction
- Make a "dramatic" increase in the bottom-line

All of the ISO families of standards make use of trained auditors who assist companies wanting to achieve ISO certification. It can take up to a full year for an organization to become ISO 9000 certified. Companies and other kinds of organizations accomplishing the certification are well recognized in countries around the world. In Singapore or Malaysia it is common to see full-page advertisements in the local newspapers heralding the accomplishment. A senior government official will usually preside at the ceremony where the certification document is presented by ISO executives. Generally, companies must be recertified every three years, sooner if necessary.

Six Sigma auditors are referred to by their level of accomplishment under Six Sigma guidelines. There are four levels of inspectors' training:

Black Belt: The Black Belt level is held by individuals who have been trained in the Six Sigma methodology and have experience in leading Functional Process Improvement Action Teams.

Green Belt: Holders of the Six Sigma Green Belt are team members in the Six Sigma Process Improvement Action Teams.

Master Black Belt: The holder of this level of achievement acts as the organization-wide Six Sigma Program Manager. He or she, oversees Black Belts and improvement projects,

while providing guidance to Black Belts as necessary. A Master Black Belt teaches other Six Sigma students and helps them to achieve higher level status.

Six Sigma Champion: Usually a top executive or senior manager who "talks-the-talk", and "walks-the-walk", of Six Sigma. He/she is the catalyst behind the organization's Six Sigma implementation. He/she has the ear of executive management.

SUMMARY

Each one of the techniques that have been developed to assist companies grow their quality have merit. Some are much easier to implement than are others. Some require a great deal of structure, while others are more informal. The Baldrige Criteria, for example, permits organizations to perform their own self-study. They can measure themselves against the criteria. Help is available, if required.

The ISO and Six Sigma methodologies are, understandably, quite complex in of themselves. Consulting firms, worldwide, have devoted their efforts to qualify their clients to the appropriate program. Implementation and certification can become very expensive, not including recertification after three years, as in the case of the ISO 9000 family of standards.

Each of these programs has helped to raise the idea of perceived and real quality, both to the internal customer, the employees, and to the external customer. These criteria have spun off even more complex standards that have become industry-specific. There are now standards that have been patterned after the ISO 9000 standard applicable to the automotive industry. Another set of standards has been applied to the aerospace industry. Boeing and Airbus build their aircraft with a set of ISO 9000-like standards, unique to the individual company.

Overall, these varying techniques have prioritized quality to become a focus point on product and service. Those companies that ignore quality will not be successful in the new era of global business.

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