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Malcolm Baldridge National Quality Award 1988 Recipient Motorola Inc.

Like an olympic athlete seeking to score better than determined world rivals, Motorola Inc. seeks sales victories in world markets for electronic components and equipment by improving the quality of its own performance. For Motorola, quality improvement leading to total customer satisfaction is the key.

In 1981, Motorola launched an ambitious drive for a tenfold improvement in the quality of its products and services. Motorola succeeded. Now, the company has evidence that many of its products are the best in their class. Looking ahead, Motorola intends to top its achievements - further gains in quality for 1989, yet another leap in 1991, and near perfection a year later. The company's quality goal is simply stated: "Zero defects in everything we do."

Motorola's managers literally carry with them the corporate objective of "total customer satisfaction." It's on a printed card in their pockets. Corporate officials and business managers wear pagers to make themselves available to customers, and they regularly visit customers' businesses to find out their likes and dislikes about Motorola products and services. The information, along with data gathered through an extensive network of customer surveys, complaint hotlines, field audits, and other customer feedback measures, guides planning for quality improvement and product development.

MOTOROLA: A SNAPSHOT

Employing 99,000 workers at 53 major facilities worldwide and based in Schaumburg, Illinois, 60-year old Motorola is an integrated company that produces an array of products, distributing most through direct sales and service operations. Communication systems -- primarily two-way radios and pagers -- account for 36 percent of annual sales, and semiconductors account for 32 percent. The remaining revenues come from sales of cellular telephones and equipment for defense and aerospace applications, data communications, information processing, and automotive and industrial uses. Sales in 1987 totalled \$6.7 billion.

Responding to the rapid rise of Japanese firms in world markets for electronics, Motorola's management began an almost evangelical crusade for quality improvement; addressing it as a company issue and, through speeches and full-page ads in major publications, as a national issue.

The company's most persuasive messages, however, are the results of its quest for quality. Most products have increased their market share, here and abroad. In Japan, for example, Motorola pagers, supplied to Nippon Telegraph and Telephone, were introduced in 1982 and now claim a major share of that market. Over the past two years alone, Motorola has received nearly 50 quality awards and certified supplier citations, tops among the 600 electronics firms responding to a survey published in March 1987.

KEY QUALITY INITIATIVES

To accomplish its quality and total customer satisfaction goals, Motorola concentrates on several key operational initiatives. At the top of the list is "Six Sigma Quality," a statistical measure of variation from a desired result. In concrete terms, Six Sigma translates into a target of no more than 3.4 defects per million products, customer services included. At the manufacturing end, this requires designs that accommodate reasonable variation in component parts but production processes that yield consistently uniform final products. Motorola employees record the defects found in every function of the business, and statistical technologies are increasingly made a part of each and every employee's job.

Reducing the "total cycle time" -- the time from when a Motorola customer places an order until it is delivered -- is another vital part of the company's quality initiatives. In fact, in the case of new products, Motorola's cycle-time reduction is even more ambitious; the clock starts ticking the moment the product is conceived. This calls for an examination of the total system, including design, manufacturing, marketing, and administration.

Motorola management demonstrates its quality leadership in a variety of ways, including top-level meetings to review quality programs with results passed on through the organization. But all levels of the company are involved. Nonexecutive employees contribute directly through Motorola's Participative Management Program (PMP). Composed of employees who work in the same area or are assigned to achieve a specific aim, PMP teams meet often to assess progress toward meeting quality goals, identify new initiatives, and work on problems. To reward high-quality work, savings that stem from team recommendations are shared. PMP bonuses over the past four years have averaged about 3 percent of Motorola's payroll.

To ensure that employees have the skills necessary to achieve company objectives, Motorola has set up its own training center and spent in excess of \$170 million on worker education between 1983 and 1987. About 40 percent of the worker training the company provided last year was devoted to quality matters, ranging from general principles of quality improvement to designing for manufacturability.

Motorola knows what levels of quality its products must achieve to top its competitors. Each of the firm's six major groups and sectors have "benchmarking" programs that analyze all aspects of a competitor's products to assess their manufacturability, reliability, manufacturing cost, and performance. Motorola has measured the products of some 125 companies against its own standards, verifying that many Motorola products rank as best in their class.