

Global strategy at motorola essay sample



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Motorola is one of the world's leading providers of wireless communications, semiconductors and advanced electronic systems, components and services. Major equipment businesses include cellular telephone, two-way radio, paging and data communications, personal communications, automotive, defense and space electronics and computers. Motorola semiconductors power communication devices, computers and millions of other products. However, in the early 1980s, the onslaught of Japanese firms penetrating the U. S. market with low-priced, high-quality mobile telecommunication devices shook Motorola from its complacency in being " the No. 1." Faced with aggressive Japanese companies, Motorola began a serious effort to address the competition and reinvent itself from top to bottom.

This study had identified Total Customer Satisfaction at the forefront of Motorola's goals. Specific objectives are: 1) to achieve Competitive Advantage by becoming Best in its class, 2) to regain lost market share and expand globally, and 3) to achieve Superior Financial Bottomlines and improve Shareholder Value.

The study focused on satisfying the customer satisfaction by meeting the specific objectives. Foremost was to modify the organizational direction of Motorola towards a Quality Path. " A product with superior quality makes a satisfied customer." Hence, the study aimed to establish a Total Quality Improvement for Motorola. Methods employed in developing a Quality Improvement Program were: 1) an appropriate Training and Education Mix, 2) Benchmarking and Best-Practices Modeling, and 3) setting attaining a new standard of quality known as the Six Sigma Quality. Six Sigma is a quality measure of near perfection: 3. 4 Defective Parts Per Million (DPPM). Motorola

achieved Six Sigma quality excellence and was awarded the Malcolm Baldrige Quality Award in 1988.

Other initiatives undertaken to deliver quality and customer satisfaction were: 1) Total Cycle Time Reduction, 2) Product, Manufacturing and Environmental Leadership, 3) Profit Improvement, and 4) Empowerment for Members of the Organization. Finally, the study recommended a global cost leadership strategy attained primarily through Motorola's quality achievements and continuing quality improvement program, and thereby effectively throwing the challenge at the feet of its Japanese competitors.

I. PROBLEM STATEMENT

The problem identified for this particular case study can be stated as follows:

“ How should Motorola respond pro-actively to the competitive pressure initiated by aggressive Japanese firms that flooded the U. S. market with low-priced, high-quality consumer electronics and wireless communication devices?”

Although Motorola has first-mover advantage in the emerging U. S. market for mobile communication technology in the 1980s, the company, like many of its contemporaries in the electronics industry, became complacent in its market position and did not assert leadership over foreign products that have just penetrated U. S. shores. When Japanese firms like NEC, Toshiba and Hitachi struck out, the onslaught caught Motorola unaware. Before the company knew it, Japan-made cellular telephones and pagers were overtaking the Motorola-made devices.

Reacting instinctively, Motorola cried foul on the Japanese manufacturers, launched a public campaign against “ unfair” competition, and even went as far as to call for political protection. But in the end, executives at Motorola had to admit that the Japanese supplied products that are far more superior than their own, and they simply had to say “ our quality stinks.”

Motorola’s top management then realized that they had to take the competition seriously in order to stay in the game, become pro-active instead of being reactive, and set out to changing the way they do their processes and procedures at the shop-level.

II. OBJECTIVES AND SCOPE

Motorola’s fundamental objective, then and now, is Customer Satisfaction. Hence, the same main objective is adopted for this case study:

- To attain Total Customer Satisfaction

The case study affirms as specific objectives as well the following key goals of Motorola:

- To achieve Competitive Advantage by becoming the best in its class in terms of People, Marketing, Technology, Product, Manufacturing, and Service
- To increase Global Market Share
- To achieve Superior Financial Results and improve Shareholder Value

The case study focuses on attaining total customer satisfaction, and satisfying this primary criteria would also meet the specific objectives.

Foremost towards meeting the fundamental objective is changing the direction of Motorola towards a quality path. A product with superior quality makes a satisfied customer. Thus, this study is limited to establishing a Total Quality Improvement initiative for Motorola.

III. METHODOLOGY

Motorola's two-fold strategy of competing head-to-head with their foreign competitors consist of: 1) learning from the Japanese, and 2) competing directly with them. The study first addresses the issue of learning valuable quality improvement lessons not only from the Japanese competitors, but also from other best-practice companies and quality training institutions, and applying these learnings to improve Motorola's own quality techniques.

Training and Education Mix

Learn how to compete better by sending Motorola's managers to study missions worldwide and specially to Japan (top-down education)

- Plant visit and study of successful Japanese firms such as Toshiba and Hitachi

- Study Motorola's own Japanese operations to learn more fully how it functioned

- Plant visit and study of U. S. best-practice companies such as General Electric

Adopt and invest in employee education and training

Motorola should not only send employees to limited quality-enhancement training, but must recognize that employees need a broader form of education to ensure that they can initiate and implement effective quality planning and design, and thereby meet company objectives. From a narrow emphasis on specific quality techniques, Motorola should focus on manufacturing-related education. Management should consider partnering with local schools and colleges in providing courses ranging from practical technical application, to business courses, to graduate work in computer-integrated manufacturing.

Benchmarking and Best Practices

Implement a benchmarking program using American and Japanese best-practices

Motorola must know what levels of quality its products must achieve to top its competitors. Each of the firm's business units must implement benchmarking programs that analyze all aspects of a competitor's products to assess manufacturability, reliability, manufacturing cost, and performance. Motorola must also measure the products of other companies against its own standards to verify that whether its own products rank as best in their class.

The case study cites that one Motorola manager who visited a Hitachi plant in Tokyo soberly realized that while, his own company had adopted a goal of increasing productivity by 20%, the Hitachi plant had set its hopes on a 200% productivity increase. This signaled that Motorola must reinvent the firm from top to bottom.

This study further goes to relate the case when a Japanese firm took over a Motorola factory that manufactured television sets in the United States, they promptly set about making drastic changes in the way the factory operated. Under Japanese management, the factory was soon producing TV sets with 1/20th the number of defects they had produced under Motorola management. This is clearly one benchmark Motorola must measure up to. From tallying per hundred or thousand parts, the Japanese was counting defects per million parts manufactured.

Adopt the Defective-Parts-Per-Million (DPPM) approach to determine product reliability

From the lessons learned from the Japanese, Motorola should institute the Defective-Parts-Per-Million, or DPPM product reliability standard. DPPM can be defined as the average number of defects in an average production run multiplied by one million. DPPM is a statistic that is given as an estimation of the entire production load:

Using a basic four-phase Quality Function Deployment (QFD) methodology as illustration, as shown in Figure 1, DPPM can be measured at various stages within the production process but the standard measurement point is at the finish of the assembly process (red-outlined area in Figure 1).

Figure 1: Four-Phase Quality

The finish of the assembly process is generally after the product has been packaged and shipped. With this in mind, there are several conditions that could negatively affect DPPM aside from actual production and/or assembly

of the product, such as erroneous and/or deficient packaging, and incorrect shipment of materials.

After learning from competitors, the study proceeds to focus on determining how Motorola should accomplish its objectives. The company determines its key initiatives as follows :

- Six Sigma Quality
- Total Cycle Time Reduction
- Continuous Quality Improvement
- Product, Manufacturing and Environmental Leadership
- Profit Improvement
- Empowerment for all, in a Participative, Cooperative and Creative Workplace

The Six Sigma Quality Standard

The Six Sigma methodology, developed in 1986 by Motorola, is a company-wide technique to achieve breakthroughs in productivity gains, Parts-Per-Million, or PPM reduction, and in-cycle time reduction. Six Sigma is a measure of quality that strives for near perfection. The Six Sigma process uses data and rigorous statistical analysis to identify “ defects” in a process or product, reduce variability, and achieve as close to zero defects as possible. Referring again to Figure 1, the Six Sigma approach is performed in the blue-outlined area or the Process/Quality Control Phase. Using a

universal measurement scale, Six Sigma defines and estimates the opportunities for error and calculates defects in the same way every time, thus offering a means for measuring improvement. In fact, Six Sigma takes its name from the Greek letter “ sigma,” which is used in statistics to indicate standard deviation. The methodology incorporates this data and statistical analysis into a project-based workflow that allows businesses to make intelligent decisions about where and how to incorporate improvements.

Six sigma, in statistical terms, refers to variance or the amount of standard deviations a production run is away from being perfect (the mean projection). Assuming a normal distribution, six sigma is essentially having only . 002 parts defective out of one million produced or a 99. 9999998 percent chance that the item being produced will be defect-free (see Figure 2). These rates are extremely exceptional and may not appear possible to implement.

Figure 2: Concept of Six Sigma Process Capability

‘ Six Sigma’ Quality, as invented by Motorola, actually equates to 3. 4 defects per million, not . 002 parts per million as a true 6-sigma would equate to. ‘ Six Sigma’ assumes that the mean can move 1. 5 standard deviations to the left or the right, leaving a standard deviation of 4. 5-sigma (see Figure 3). A standard deviation of 4. 5 sigma from the mean is 3. 4 parts per million (see Figure 4).

Figure 3: Motorola’s Six Sigma Quality Standard

Figure 4: 1.5 Sigma Shift by Motorola

The range of Sigma deviations or DPPM is given below. These values are also illustrated in Figure 5.

One Sigma = 690, 000 per million units

Two Sigma = 308, 000 per million units

Three Sigma = 66, 800 per million units

Four Sigma = 6, 210 per million units

Five Sigma = 230 per million units

Six Sigma = 3. 4 per million units

Figure 5: Sigma Scale of Deviations

Most companies fall within the range of Four to Five Sigma DPPM; Motorola established a quality goal of 3. 4 DPPM, or the Six Sigma Quality Perfection (see Figure 6).

Figure 6: Benchmarking with Other Products and Services

At the heart of Six Sigma is a systematic method for analyzing and improving business process called DMAIC. The DMAIC model includes five phases:

Define opportunities

- Selecting and defining the right process is critical. Effort can easily be wasted working on poorly selected, ill-defined processes.

Measure performance

- Process sigma is the primary unit of measure. It is determined from an analysis of the number of defects observed in a process.

Analyze opportunity

- Performance is compared to the Best-In-Class sigma for that process to determine whether the process needs to be improved or the product / service needs to be re-designed.

Improve performance

- When improvement is necessary, Design of Experiments (DOE) are used to determine which product or process parameters are most important and specific parameter values that will give the best performance.

Control performance

- Statistical Process Control (SPC) is used to continually monitor product and process performance.

By implementing Six Sigma wisely on carefully selected projects, Motorola and other companies will benefit from:

- Improved customer satisfaction
- Reduced cycle times
- Increased productivity
- Improved process flow, capacity and output

- Reduction in total defects

- Increased product reliability

- Decreased work-in-process (WIP)

IV. FINDINGS AND CONCLUSIONS

A. Areas of Consideration (SWOT Analysis)

STRENGTHS

- Motorola is one of the world's leading providers of wireless communications, semiconductors and advanced electronic systems, components and services. The firm controls 45% of the worldwide market for these products, holds the Top 2 position in semiconductor sales, and continuously launching new and innovative products and services.

- Motorola is an inventor of technology and has first-mover advantage. It pioneered commercial home and police radio communications. The brand name “ Motorola” suggests “ sound in motion.” In the 1940s, the firm opened a research laboratory in Phoenix, Arizona, to explore solid-state electronics.

- In the early 1980s, Motorola controlled the emerging U. S. market for wireless communication devices such as cellular telephones, pagers and high-frequency radios. In the early 1990s received its first orders as the prime contractor for the IRIDIUM® satellite-based, global personal communications system.

- Presently, Motorola maintains sales, service and manufacturing facilities throughout the world, conducts business on six continents and employs more than 139, 000 people worldwide.
- Motorola is strongly committed to delivering customer satisfaction, continuous improvement, and setting new standards of quality.

WEAKNESSES

- Motorola maintained old strategies in doing business, was conservative and unambitious.
- Motorola was complacent in its leadership position in the U. S. market, and failed to aggressively compete with the emerging Japanese firms.

OPPORTUNITIES

- Motorola can compete and expand globally.
- Information and communications technology is fast-paced, with new discoveries happening every minute. Motorola can match this speed of discovery with new and innovative product and technology development.

THREATS

- Japanese electronics firms are heavy competitors in terms of cost and quality leadership.
- Porter's Five Forces of the Industry Rivalry, i. e., Barriers to Entry, Supplier Power, Threats of Substitutes, Degree of Rivalry, and Buyer Power (see Michael Porter's The Competitive Advantage of Nations).

B. Evaluation of Motorola Initiatives

1. Six Sigma Quality

Motorola's management set its target on the Six Sigma level of quality needed to achieve competitive advantage. Once implemented, it became a continuous program for improving quality in virtually everything Motorola does. Six Sigma has become the world standard for improving all kinds of product and service operations. The application of Six Sigma contributed to Motorola winning the Malcolm Baldrige National Quality award in 1988. After winning the Malcolm Baldrige National Quality Award, Motorola began asking their suppliers to begin using quality management principles and actually apply for the Baldrige award themselves in order to remain a Motorola supplier. The company continues to implement Six Sigma throughout its own enterprise, and extends the benefit of this expertise to other organizations worldwide through Motorola University.

2. Total Cycle Time Reduction

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.

3. Product, Manufacturing and Environmental Leadership

Motorola management demonstrates its 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. Non-executive 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, to identify new initiatives, and to work on problems. To reward high-quality work, savings that stem from team recommendations are shared.

4. Profit Improvement

Cumulative manufacturing cost savings at Motorola, for the years 1987 through the second quarter of 1994 were over \$5.5 billion. The company has been implementing Six Sigma throughout the organization for over 15 years, extending the practice beyond manufacturing into transactional, support, and service functions. As a result, Motorola has documented over \$16 billion in savings.

5. Empowerment for all, in a Participative, Cooperative and Creative Workplace

According to an article in Fortune magazine, Motorola is the "gold standard of corporate training." Motorola sees training as critical to increasing quality and productivity. For every dollar spent on training, the company estimates a return of \$30 in productivity gains within 3 years. William Wiggernhorn, president of Motorola University, commented, "When you buy a piece of equipment, you set aside a percentage for maintenance. Shouldn't you do

the same for people?” Training is part of the team approach at Motorola, and the company has found that training is most effective when team members are trained together. Motorola employees are encouraged to use the information they gain in training to constructively comment on the way things are done, and to strive to find better ways of doing them.

C. Alternative Courses of Action

1. Cost Leadership Strategy

This strategy calls for Motorola to become the lowest cost producer in the wireless communications and advanced electronic systems industry and at the same time achieving a Six Sigma standard of quality. Using the cost advantages gained from ‘almost-zero’ defects and short-cycle times, Motorola can sell its products either at average industry prices to earn a profit higher than that of Japanese and other rivals, or below the average industry prices to regain lost market share and gain some more. As the industry matures and prices decline, provided that Motorola will continue to produce more cheaply, it will remain a leader and be profitable for a longer period of time.

2. Product Differentiation Strategy

In this strategy, Motorola needs to develop a product or service that offers unique attributes that are valued by customers and that customers perceive to be better than or different from the products of the competition. The value added by the uniqueness of the product may allow Motorola to charge a premium price. The firm then hopes that the higher price will more than

cover the extra costs incurred in offering the unique product. Because of the product's unique attributes, if Motorola's distribution channels increase prices, the firm can then be able to pass along the costs to customers who cannot find substitute products easily.

3. Focus Strategy

The focus strategy concentrates on a narrow segment and within that segment attempts to achieve either a cost advantage or differentiation. In this case, Motorola can choose either of its business areas: mobile communications, semiconductors or advanced electronic systems. The premise is that the needs of the chosen industry or business area can be better serviced by focusing entirely on it. Using a focus strategy, Motorola hopes to enjoy a high degree of customer loyalty, and this entrenched loyalty discourages other firms from competing directly.

V. SUMMARY AND RECOMMENDATIONS

Considering all the factors and assumptions of this case study, the recommendation is for Motorola to implement a global cost-leadership strategy. Motorola already has all the advantages and internal strengths necessary to succeed with this kind of strategy:

- Access to the capital required to make a significant investment in production assets – Motorola boosts its budget for research and development and employee education.

- Skill in designing products for efficient manufacturing, for example, having a small component count to shorten the assembly process – Motorola

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invented and achieved the Six Sigma Quality Standard, and reduced total cycle time.

- High level of expertise in manufacturing process engineering – Proof to this is that Motorola has in fact established the Motorola University where knowledge management and sharing is the mission.
- Efficient distribution channels – Motorola maintains sales, service and manufacturing facilities throughout the world, and conducts business on six continents.

Furthermore, Motorola attempted to use the corporate, business and functional strategies to achieve its goals and objectives:

- On the corporate level, Motorola focused on 45% of the total market for pagers and cellular telephones. In 1999, 56% of total revenues were expected to be generated from overseas markets, and by year 2002, this figure is targeted to reach 75%.
- On the business level, Motorola had divided its activities into seven business sectors to allow them to become more focused on one particular aspect of telecommunications. They are:
 1. Automotive, Energy & Components Sector – designs and manufactures a variety of electronics for automotive, industrial, transportation, energy, and lighting markets.
 2. Cellular Networks & Space Sector – designs and manufactures equipment for wireless communication and satellite communication systems.

3. Cellular Subscriber Sector – designs and manufactures a variety of cellular phones and distributes them to countries around the world.

4. Land Mobile Products Sector – designs and manufactures a variety of two-way radios and distributes them to countries around the world.

5. Motorola Computer Group – designs and manufactures personal computer products.

6. Messaging, Information, and Media Sector – designs and manufactures a wide variety of pagers, software products, and Internet software.

7. Semiconductor Products Sector – designs and manufactures semiconductors, microprocessors and controllers, and circuits.

And lastly, Motorola uses the functional strategy when it decided what initiatives will best support individual activities. As mentioned, these include continuous quality improvement, product innovation, and employee education and productivity enhancement.