The Realities of Becoming a Long-Term Supplier to a Large TQM Customer

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In late 1993, the range appliance division of Whirlpool Corporation adopted total-quality-management principles. It announced that companies would have to meet specific objectives and support quality if they wanted to be considered as future suppliers of Whirlpool's components. Many of Whirlpool's established suppliers were suddenly forced to realize that long standing relationships were no longer important. One of Whirlpool's long-time suppliers, Stanley Engineered Components (SEC), a small supplier of oven-door latches, spent three and one-half years attempting to accommodate and keep its largest customer. How did SEC accommodate and satisfy Whirlpool? Top management committed itself to a complete change in corporate philosophy, strategy, and practice. To bring about the change, top management hired talent from outside and developed in-house talent. Top management used TQM-style principles as a method of competitive advantage to obtain new business contracts. SEC understood and complied with the needs of its customers.

Total quality management (TQM) is an organization-wide philosophy that requires a commitment to change, not just once but as an ongoing process. This commitment is usually the result of an internal desire on the part of top management to
meet external challenges and to best its competitors in the delivery of products and services. Most, if not all, of the literature on TQM is written from the point of view of the organization that chooses to conduct its business using a TQM approach. These companies make a deliberate decision to change. They make changes throughout the organization and pass these changes on to their suppliers. What does not appear in the literature is what happens to the suppliers, especially when the supplier is much smaller than its customer and is in no position to modify or reject the TQM requirements its large customer imposes upon it. Stanley Engineering Components (initially called Stanley Industrial Hardware) faced this situation when Whirlpool Corporation, its main customer, adopted TQM principles.

In 1993, SEC had annual sales of approximately $15 to $20 million. It was the smallest division of the Stanley Works, a $2.2 billion worldwide supplier of hand tools, hardware, and hardware products. For over 30 years, SEC had been mainly producing and supplying oven-door-latching mechanisms to the range-appliance industry. The oven-door-latching mechanism locks an oven door during the self-cleaning cycle in both gas and electric ranges. Customers viewed SEC as a supplier of customer-designed stamped-metal assemblies. SEC provided little input on issues relating to the designing, manufacturing, and marketing of their customers' end products.

The largest of SEC's customers was the range-appliance division of Whirlpool Corporation. The Whirlpool Corporation is an $8.35 billion company and the world's leading manufacturer and marketer of appliances. SEC has been a supplier of oven-door latches to Whirlpool for over 20 years.

In late 1994, Whirlpool began construction of a new cooking-products facility in Tulsa, Oklahoma. In mid-1996, Whirlpool finished the Tulsa plant and began manufacturing free-standing gas and electric ranges. Since Whirlpool would now produce most of its ranges at the Tulsa plant, SEC realized that its future Whirlpool business depended on meeting the requirements of the new plant and that its 20-year history with Whirlpool would not be enough to keep it in the running as a supplier.

**Whirlpool Imposes TQM Principles**

In early 1993, Whirlpool notified its existing and potential suppliers that it was adopting a new form of customer-supplier relationship based on TQM principles. It wanted its suppliers to be business partners. This cooperative partnership differed from the existing customer-supplier arrangement in which price was the main objective. Whirlpool asked potential suppliers to provide extra value-added services and encouraged them to become partners expert in Whirlpool's business, to participate in customer-supplier teams, and to learn about the needs of range owners. Potential suppliers had to convince Whirlpool that they could help Whirlpool achieve its corporate goals.

How the suppliers would accomplish this was up to them. They now had to devise their own strategies to help Whirlpool meet its goals, whether good or bad for them. If Whirlpool judged the supplier capable of helping it achieve its goals, then it
awarded the supplier an exclusive long-term contract and made it a business partner. Although suppliers were called business partners, the initial implication was that suppliers would be pressured to do much more for their customer than the customer was willing to do for the suppliers.

Whirlpool wanted suppliers to follow its strategy.

From 1993 to 1996, the first author had an industrial career as a project manager with SEC. His responsibilities were devoted almost exclusively to Whirlpool. Since 1996, he has been pursuing an academic career. This paper is an attempt to bridge both academic and industrial disciplines. To properly analyze and describe the situation to which SEC was subjected, we use the 1997 Malcolm Baldrige National Quality Award Criteria for Performance Excellence to show how Whirlpool’s demands, presented as TQM principles, can affect a small supplier. The Malcolm Baldrige National Quality Award Criteria represents the requirements for quality excellence and quality awareness. The award has been recognized as a means of increasing quality in order to compete effectively. The criteria we examined are strategic planning, leadership, customer and market focus, information and analysis, human resource development and management, process management and business results.

Strategic Planning

Whirlpool wanted to become business partners with its suppliers, but it also wanted the suppliers to follow its strategy. Whirlpool’s strategy was to deliver world-class products that exceeded customer expectations and to be committed to continuous quality improvement. What enabled Whirlpool to achieve its strategy was its ability to leverage the supplier’s technical expertise. Whirlpool wanted its suppliers to be flexible and proactive to change because it wanted continuous improvement. In addition, the suppliers had to be capable of consistently producing high-quality products at low cost and providing extra value-added services to Whirlpool. These services required SEC to make daily deliveries, to provide free consulting, and to engage in proactive initiatives to decrease product cost and increase product quality.

Another of Whirlpool’s key strategies was to decrease the size of the supplier base. In addition to the oven-door-latching mechanism, Whirlpool encouraged SEC to develop a program to manufacture oven-door hinges. Whirlpool assumed that this would be a natural extension to SEC’s product line because a hinge is a stamped-metal assembly. Whirlpool wanted SEC to compete for the combined business of both latches and hinges and to initiate a TQM program. It could then rely on one supplier to provide what two suppliers had provided in the past.

SEC faced many barriers to change. Its entire management style, organizational structure, and personnel had been conditioned to take a subservient role in the customer-supplier relationship. To become a business partner, SEC would first have to change its philosophy. SEC would be expected to initiate cost-saving and quality-improving ideas that extended far beyond SEC’s products. SEC had to turn
itself into an internal, and free, consultant to help Whirlpool in its TQM programs. The major barrier to accomplishing this new corporate philosophy was that SEC did not know what to do or how to do it.

A second barrier to change was the enormous risks that SEC had to assume. Its previous method of doing business, although far from risk free, was in a stable environment, and SEC knew what to do to compete successfully. Low price won orders. Supplying to Whirlpool under TQM principles would mean competing in a highly uncertain environment that presented a far greater risk of failure. As SEC made changes and considered other changes, it was constantly reminded that these changes did not guarantee new business. SEC was keenly aware of the financial risks associated with attempting to satisfy Whirlpool’s TQM requirements. If SEC was not able to meet Whirlpool’s requirements, then Whirlpool would not consider it as a potential supplier. Perhaps a worse risk was that SEC would make it to the potential list, only to lose out to a competitor. Two other organizations were also competing for Whirlpool’s business. One competitor was actually one part of the appliance division of the Whirlpool Corporation. In this instance, SEC faced an additional risk in that it had to share all its financial, technical, and managerial information with its competitor as well as its customer. Losing Whirlpool’s business would result in a 20-percent loss in sales along with high sunk costs. SEC saw business failure as a distinct possibility if it attempted to gain Whirlpool’s business and did not get it.

Even if it did become a long-term supplier, SEC faced many problems. SEC was finding oven-door hinges difficult to manufacture; it had begun to develop this product line in very small quantities for another customer. Once SEC began to produce hinges in quantity, failure to live up to Whirlpool’s TQM requirements could result in the loss of the hinge business and maybe even the latch business as well. SEC could not afford to lose its current Whirlpool business, but it was not ready to adopt TQM philosophies or begin volume production of hinges.

SEC was constantly reminded that changes did not guarantee new business.

SEC at first found it difficult to understand how to meet Whirlpool’s expectations. As SEC considered changing its way of doing business with Whirlpool, it decided that its existing and future customers would also have to accept this way of doing business. SEC was not willing to run two separate business structures. SEC consciously chose TQM as a competitive advantage and assumed the risk of losing customers who did not favor TQM principles. SEC considered Whirlpool’s demands as an opportunity to force itself to adopt TQM practices. SEC also realized that Whirlpool was not going to lead it through the TQM process; SEC would have to develop it for itself.

SEC needed to change its philosophy of being just a supplier to a philosophy of being a concerned business partner. SEC started its philosophy change by hiring and developing personnel who would work with its customers to develop inno-
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ative methods to design products, to track and increase quality levels, and to work toward low-cost, high-volume products. The people it hired were experienced engineers and managers familiar with TQM concepts. These recent hires were to implement TQM principles and act as catalysts in changing the philosophy.

Until mid-1993, SEC’s company name was Stanley Industrial Hardware. To advertise its new TQM attitude, the company changed its name to Stanley Engineered Components (SEC). SEC advertised itself as a company willing to share its expertise. SEC was no longer known as just a supplier of stamped metal assemblies; it also provided customers with assistance in designing, manufacturing, and marketing their end products. SEC advertised itself as capable of providing products and services that would continue to give its customers a competitive advantage. SEC was trying to become a concerned business partner by considering all aspects of the final product, not just those pertaining to the SEC-supplied components. By paying attention to details, adopting a caring attitude, and instituting controls, SEC hoped to prevent problems. SEC showed its willingness to change in many ways. Perhaps the most striking example was SEC using its own personnel to codevelop a latch and a hinge with Whirlpool even though there was no guarantee that SEC would get Whirlpool’s business.

SEC was expected to contribute to system redesigns based on disassembling and reassembling prototype ranges. Disassembling and reassembling the ranges gave all involved a better understanding of the entire product, not just their own particular supplied items. The continuous improvement sessions generated many new ideas that cut across previously restricted boundaries. SEC was willing to provide these services and always at its own expense. By becoming free internal consultants to Whirlpool, SEC demonstrated that it was a concerned business partner. By becoming a concerned business partner, rather than just a stamped-metal-assembly supplier, SEC satisfied Whirlpool’s first expectation that it make a philosophical change. SEC had successfully jumped the first hurdle.

Leadership

Whirlpool expected its suppliers to provide a sustainable, competitive advantage that was consistent with its strategy. Whirlpool did not provide leadership to SEC. It simply imposed its demands. Whirlpool provided only a simple slide show and a list of expected deadlines. Whirlpool’s size and its potential for business left little room for negotiation. Developing strategy for achieving Whirlpool’s goals rested solely with the supplier. By not laying out detailed plans, Whirlpool left the strategic thinking and acting up to SEC.

SEC realized that it would have to make changes in business practices long before Whirlpool imposed them. Aware of business attitudes and trends, some managers had predicted change. Much of this warning about impending change came from marketing personnel during 1991 and 1992. Company managers knew that they had to be prepared for change but they didn’t want to institute changes until they were forced to do so. This restrained proactiveness prepared SEC to accommo-
date Whirlpool's demands.

**Customer and Market Focus**

Whirlpool stated that its customers wanted low-cost, high-quality products that were readily available. Whirlpool also stated that its customers had a wide range of preferences and needed a larger selection of Whirlpool products to choose from. Whirlpool wanted its products to be available immediately to purchasers. In 1993, 80 percent of ranges purchased were available immediately, and Whirlpool produced nine stock-keeping units (SKUs) per day. For the new product line, it established new goals of 95-percent product availability and daily SKU production of 30.

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SEC had successfully jumped the first hurdle.

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To achieve Whirlpool's new goals, SEC had to rethink its manufacturing. It could no longer conduct continuous production runs of single components and make semi-weekly deliveries as the norm. Flexibility in manufacturing required quick die changes, small run sizes, cross-trained assemblers, and daily deliveries. SEC needed well-thought-out plans and time to implement them.

Whirlpool wanted SEC to help predict consumer preferences. It sought SEC's opinions, suggestions, and solutions to problems about many aspects of the range, most of them not related to SEC components. Again SEC was expected to play the role of free consultant. Whirlpool expected SEC to perform many time-consuming tasks before it established formal agreements for production with SEC.

SEC hired a manufacturing engineer and project manager who were knowledgeable about TQM. These people conditioned the staff to rethink SEC's methods of manufacturing. These new methods, typical of TQM manufacturing, required extensive communication between manufacturing-engineering, design-engineering, and production personnel and SEC suppliers. Finding suppliers and creating a new production area capable of supporting manufacturing flexibility were the first goals SEC achieved. Choosing personnel willing to work in this new environment was the second goal.

SEC's sales staff and engineers were expected to incorporate their knowledge from previous range-appliance programs for use with Whirlpool's new program. Because of their design experience, these SEC personnel formed a focus group. Whirlpool based its decisions for the new products on its experience with previous designs as well as competitors' designs. SEC had become knowledgeable about Whirlpool's total product line and the market in which Whirlpool competed.

**Information and Analysis**

One method of aligning a company's operations with its strategic objectives is through self-assessment. Whirlpool wanted to assess its own performance by measuring and tracking its manufacturing production compared to its schedule. It expected this type of self-assessment from its component suppliers quarterly. Each week, suppliers were expected to track how well they were shipping to Whirlpool's schedule and to the schedule changes Whirlpool made. Whirlpool mandated a computer-to-computer relation-
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ship with suppliers so they could receive orders through electronic data inter-
changes (EDIs).

Whirlpool’s tracking requirements meant additional responsibilities for SEC
employees. SEC relied on the mail and faxes for handling orders. Procuring a sys-
tem to enable EDIs between Whirlpool and SEC would be costly. The investment
would not improve the product; it would simply allow Whirlpool to send its sched-
ule and make changes at its convenience. SEC had never used an EDI system, and it
was intimidated by Whirlpool’s ability to alter the schedule electronically.

SEC bought and implemented an EDI system. Using this system, SEC could
track and record the required production measurements. To apprise its employees
of their performance, SEC displayed this information on bulletin boards throughout
the company. Managers held meetings with all the employees to explain the
charts and the importance of meeting goals. To improve, SEC developed teams
to evaluate its current methods for manufacturing, problem solving and quality
improvement. Teams included design, manufacturing, production, and supplier
personnel. SEC employees spent hours analyzing performance and identifying areas
for improvement.

Human Resource Development and
Management

One of Whirlpool’s key strategic thrusts was to “effectively manage the selected
technology base that emanates from the suppliers.” To meet Whirlpool’s objectives,
SEC had to communicate Whirlpool’s needs to all of its employees. Whirlpool
demanded high-quality, low-cost, timely products, and SEC had to comply with
these demands.

To decrease component cost, SEC was forced to cut the incentive pay it offered to
assembly workers. Incentive pay rewards production personnel for surpassing as-
sembly goals by paying a higher hourly wage. For the new Whirlpool program,
SEC proposed a lower incentive rate, the result being that assembly workers would
receive less incentive pay. To change the incentive rate, SEC had to negotiate with
the unions and convey the importance of basically working at a lower pay rate. The
argument, led by SEC salaried managers, was that obtaining the Whirlpool order re-
quired sacrifices from all levels. After lengthy discussions, the union agreed to
lower the incentive rate of pay only on
new Whirlpool orders. It made this agree-
ment before Whirlpool awarded a con-
tract. SEC needed the union’s support for
the lower incentive rate.

Process Management

Whirlpool told SEC that growth and
profitability are created through the suc-
cessful execution of three “capabilities”:

—10× (10 times) quality improvement,

—Five-percent total cost productivity, and

—World class logistics

10× quality improvement is a program
aimed at decreasing the incidence of ser-
vice calls and the costs associated with
them. As defined by Whirlpool, such calls
require Whirlpool repair persons to visit
homeowners’ kitchens to repair defective
ranges. Whirlpool incurs the costs within
the one-year warranty period. The goal of
Whirlpool’s program was a tenfold reduc-
tion in the service-incidence rate. The
service-incidence rate in 1993 was 200

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house calls per 1,000 ranges (or a 20-percent service-incidence rate). Based on the 10 x quality-improvement program, SEC needed to help Whirlpool to reduce its service-incidence rate to two percent (or 20 calls per 1,000 ranges). This involved not only improving the quality of SEC components, but also of the whole range.

To determine how the components failed, Whirlpool imposed a technical method known as failure mode and effect analysis (FMEA) on its suppliers. In FMEA, the designer identifies potential problems and solves these problems by redesign. The redesign may involve selecting different components, decreasing the number of parts, or eliminating wasted steps in production. SEC would have to go through an extensive analysis of SEC components and the Whirlpool system connected to the SEC components. Another method of reducing the service-incidence rate was to use statistical process control to monitor and control the manufacturing process. The goal was for suppliers to produce components with a maximum defect rate of less than 3.4 parts per million (ppm). In 1993, SEC-supplied components had a maximum defect rate of 63 ppm. Whirlpool wanted SEC to reduce its maximum defect rate by 18.5 times (from 63 ppm to 3.4 ppm). Even though Whirlpool wanted to increase its total system quality by 10 times, it was making its suppliers increase their component quality by 18.5 times. SEC did not know whether it could achieve Whirlpool’s goal for supplier quality.

Whirlpool also wanted SEC to perform application tests on all its completed assemblies. Performance testing on this great a scale would detect problems before they could affect Whirlpool’s assembly line, but it would be very labor intensive and difficult to achieve.

Quality needed to be designed in at the very beginning. Through careful design and coordination with Whirlpool, design engineering, manufacturing engineering, employees, and suppliers, SEC developed a design in 1994 to minimize defect rates. By 1995, SEC had reduced its maximum defect rate by 18.5 times, from 63 ppm to 3.4 ppm. SEC met but did not exceed Whirlpool’s goal for supplier quality.

SEC’s gamble paid off.

The goal of the 10 x quality improvement program was to reduce the services incidence rate to two percent. After nearly a year of production, Whirlpool’s service-incidence rate actually rose from 20 percent and is estimated to be 25 percent, despite SEC’s improvements. Whirlpool expects its service incidence rate to drop, but the two-percent goal seems out of reach. It is in SEC’s interest to help Whirlpool solve this problem; SEC knows that if Whirlpool succeeds, SEC succeeds.

Whirlpool imposed a five-percent total cost productivity program on its suppliers, requiring them to reduce the total cost of their products and processes by a minimum of five percent each year. The idea is that continuous improvement will drive down costs, and the savings can be passed on to the end user. SEC realized that Whirlpool’s goal of decreasing its costs by five percent per year would mean continuously decreasing profits for SEC and Whirlpool’s other suppliers.
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To satisfy Whirlpool’s expectation, SEC put a five-percent total cost productivity program into place. First it identified suppliers who were willing to commit to a program that would decrease SEC’s total costs for their products and processes by a minimum of five percent per year. In the same way that Whirlpool passed the requirements on to SEC, SEC would impose the same requirements on its suppliers. Willingness to commit to the cost reduction program would not guarantee suppliers SEC’s business; it merely put them on a possible suppliers list. SEC would determine its suppliers only after extensive analysis of their capabilities: ability to offer a low price, technical competence, and ability to change and cooperate. In 1996, SEC implemented the Whirlpool imposed five-percent total cost productivity program. With yearly five-percent cost reductions, SEC expects its profit margins to shrink.

Whirlpool’s world class logistics program is an effort to reduce parts inventory, work-in-process inventory, and finished-goods inventory. Although promoted as a method for suppliers to reduce inventory, the clear purpose was to decrease Whirlpool’s inventory. To enable Whirlpool’s manufacturing flexibility, SEC would have to make smaller, sometimes daily, deliveries. The inventory at Whirlpool was never to exceed a two-day supply. SEC had to ship components in “group packages” of multiples of 24. Assembling ranges in lots of 24 allows Whirlpool great flexibility in meeting demands for different styles.

By initiating a flexible-manufacturing environment and procuring an EDI system, SEC has been able to accommodate the world class logistics program. It makes daily shipments to Tulsa, Oklahoma, and it receives daily deliveries of raw materials. The key to success in this program has been Whirlpool’s accurate schedules and SEC’s correspondingly accurate schedules for its suppliers. At Whirlpool’s plant and at SEC’s, work-in-process and finished-goods inventories have decreased.

**Business Results**

Whirlpool stated that its chosen suppliers would be the best in their class and their goals would be in line with Whirlpool’s goals. Through a cycle of growth and profitability, suppliers would benefit with Whirlpool. As SEC made changes and considered other changes, it constantly reminded itself that changes did not guarantee new business. SEC was just one potential supplier Whirlpool was considering for its new program. In early 1995, the buyers at Whirlpool accepted SEC’s design proposals for the latch and hinge assemblies and awarded it Whirlpool’s business. After initial celebration and euphoria, the reality of the situation sunk in. SEC was now a sole supplier to a customer that expected daily deliveries of error-free components. SEC had to provide perfect products 100 percent of the time. Because Whirlpool held only two days of inventory, bad products would shut down its assembly line.

SEC started shipping small quantities of latches and hinges early in the spring of 1996. Although SEC succeeded in becoming a supplier, two competitors for this business did not. The competing appliance division in Whirlpool and another components supplier lost out to SEC. These two
companies had expended time, energy, and money in unsuccessful efforts to obtain the contract. Because they did not win the contract, they lost the opportunity to pay for their efforts and therefore lost their sunk costs.

After Whirlpool adopted the TQM philosophy, its major competitor, General Electric, instituted similar TQM requirements. SEC was in a good position to get additional GE business because of the strategy it adopted in 1993, and it eventually received this business.

In mid-1996, Whirlpool gave SEC an opportunity to supply smoke eliminators and venting tube assemblies and chose it to supply these components. Since SEC first starting shipping components to this new program, Whirlpool has awarded SEC $5 million in additional yearly business. At the same time, other suppliers lost this $5 million in business.

By adopting TQM, SEC became a successful competitor. Between 1993 and 1997, SEC’s sales to Whirlpool increased 125 percent, and its productivity increased by 76 percent. Over the same period, its sales to other customers (originally non-TQM customers) increased 25 percent. For SEC, implementing TQM, although risky and painful, was a success. SEC realized that it must solve problems immediately and provide the best possible design and quality at a competitive price. As a supplier, SEC needs to initiate new technology ideas. If Whirlpool develops an idea with another supplier, it could award the business to that supplier. Suppliers to organizations that use TQM principles must always be ready to change and be on the alert.

Conclusion

In adopting TQM, SEC made changes that brought about both benefits and problems. Whirlpool demanded and received lower prices on SEC-supplied items, which reduced SEC’s profit margins. The productivity gains did not offset the mandatory five-percent cost reductions. As long as Whirlpool continues its five-percent total cost productivity plan, SEC profit margins will continue to erode every year. Other customers, learning of SEC’s cost-reduction agreement with Whirlpool, also wanted lower prices. As a result, SEC’s profits will be continually squeezed into the future. Whirlpool’s TQM role as a “concerned business partner” was a veiled way to get free consulting from SEC and low component cost. Whirlpool did not show much concern for SEC. It was directly concerned only about its own advantage. SEC needed to hire more engineers and quality-support personnel, thus increasing its overhead costs and further eroding profits. The program has taken a toll on individuals. Assembly-line workers now get lower pay for products supplied to Whirlpool. SEC management and engineers have to put in longer hours and travel away from home far more frequently to maintain personal contacts at Whirlpool.

The SEC case illustrates what many firms may face as their customers adopt TQM principles. Whirlpool used its adoption of TQM principles as a cost driver with its suppliers. It also relied on SEC to solve its problems, using SEC employees as free consultants. Communication and help were largely unidirectional—from SEC to Whirlpool.
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Although Whirlpool's adoption of TQM principles had many negative consequences for SEC, the net results were positive. SEC has increased its sales and improved its quality and productivity. Net profits, although a lower percentage of sales, are a higher absolute amount. Clearly, if SEC had not been careful, it could have experienced all of the disadvantages and few of the benefits.

How did SEC take a potentially disastrous situation and turn it into something beneficial? Most important, in 1993, it foresaw the changes that would occur. Although it could not perceive these changes clearly, SEC knew it had to change. More important, SEC knew it had to change completely. Just meeting Whirlpool's TQM requirements would not be enough to remain financially viable. Whether Whirlpool forced it upon SEC or not, SEC had to adopt TQM methods as a company-wide philosophy and use them on all its products and processes. SEC changed itself from being a supplier of stamped-metal assemblies to being a manufacturing and engineering company that will use its expertise to help its customers solve problems with their final products.

Total quality management is not the nice successful concept that is written about. There are negative consequences that cannot be avoided. SEC suffered all these consequences and assumed great risks when it adopted TQM principles. When forced to adopt TQM principles, SEC did not fight the change but rather chose to gamble that it could adapt to new circumstances. SEC increased the odds of a successful gamble by totally committing itself to change and satisfying its customer. Its gamble paid off only because it was willing to commit completely to TQM principles, compete aggressively, and suffer profit-margin erosion.

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Thomas W. Spargo, Application Support Manager, Stanley Engineered Components, 100 Curtis Street, New Britain, Connecticut 06053, writes: “The situation described in ‘The Realities of Becoming a Long-Term Supplier to a Large TQM Customer’ is an accurate representation of the events that occurred from 1993 through 1996. During that time, Chris Roethlein worked closely with the Whirlpool staff as a project manager for Stanley Engineered Components (SEC). He was the technical interface for all issues involving the oven door latching mechanism.

“Meeting Whirlpool’s new requirements was, and is, truly a challenge. Whirlpool’s quest for continuous improvement is never ending. SEC continually seeks technology and manufacturing strategies that will better accommodate Whirlpool’s needs. By having Whirlpool as a customer, SEC has taught itself how to be a better supplier. It took a big customer like Whirlpool to force us to make the changes necessary to support a program like theirs. By altering our way of thinking, SEC has been able to increase sales, decrease inventory, and increase profits. This transition wasn’t easy, but SEC believes it was worth it. In order for SEC to survive, we will have to keep customers like Whirlpool happy.”