SIX

SIGMA

THE BREAKTHROUGH MANAGEMENT STRATEGY REVOLUTIONIZING THE WORLD'S TOP CORPORATIONS

"Six Sigma [strategy] is...part of the genetic code of our future leadership."
—JACK WELCH

MIKEL HARRY, PH.D., AND RICHARD SCHROEDER

Smith, an engineer at Motorola's Communications Sector, was quietly working behind the scenes studying the correlation between a product's field life and how often that product had been repaired during the manufacturing process. In 1985, Smith presented a paper that concluded that if a product was found defective and corrected during the production process, other defects were bound to be missed and found later by the customer during early use of the product. However, when the product was manufactured error-free, it rarely failed during early use by the consumer.

Although Smith's findings were initially greeted with skepticism, customer dissatisfaction with a product that failed shortly after it had been purchased was very real. As a result, Smith's finding ignited a fierce debate within Motorola. Was the effort to achieve quality really dependent on detecting and fixing defects? Or could quality be achieved by preventing defects in the first place through manufacturing controls and product design? Later data would show that a concerted effort at detecting and fixing defects would lead Motorola only to four sigma—placing it only slightly ahead of the average American company. At the same time, the company was finding that foreign competitors *were* making products that required no repair or rework during the manufacturing process.

Others at Motorola began to take a second look at Smith's work. If hidden defects caused a product to fail shortly after the customer began using it, something needed to be done to improve the manufacturing process. As a result, Motorola began its quest to improve quality, and simultaneously reduce production time and costs, by focusing on *how* the product was designed and made.

It was this link between higher quality and lower cost that led to the development of Six Sigma—an initiative that at first focused on improving quality through the use of exact measurements to anticipate problem areas, not just react to them. In other words, Six Sigma would allow a business leader to be *proactive*, rather than *reactive*, to quality issues.

The difference between previous total quality approaches and the