

STEERING SIX SIGMA... PARTNERS IN QUALITY

When General Electric Co. Chief Executive Officer Jack Welch announced in 1996 that the company was about to embark upon a massive program to improve overall product quality, he knew achieving perfection would not come overnight.

He knew that it could take years and hundreds of millions of dollars to reach that goal. He also knew the risks, but he had the vision of where GE could be in terms of profit through successfully decreasing defective products.

Two years later, that initial \$200 million initiative, Six Sigma — a statistics-based methodology which has as its primary goal attaining perfection in each GE product and company process — is beginning to reap millions of dollars in documented benefits for this massive manufacturer of industrial and household products.

HOW DOES SIX SIGMA WORK?

The idea of Six Sigma is not new. According to a recently published article in *CIO* magazine¹, Six Sigma was born anywhere from 10 to 20 years ago in corporate engineering communities, which makes as its habit reducing processes to statistically measurable phenomena (the cornerstone of Six Sigma). Motorola Inc. is often cited as the creator of formal Six Sigma methodologies, which it has used since the late 1980s.

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Jim Jubelirer
Senior Consultant • Burke
Customer Satisfaction Associates
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Six Sigma is in place throughout GE. The objective is that by the year 2000, the system will ensure that fewer than four defects per million operations will be produced. Six Sigma begins with what GE calls CTQs or, critical-to-quality characteristics. These characteristics, which can be internal or external, can range from how customers judge an experience, to their perception of quality. Simply put, CTQs are those things that are critical to quality in the customer's eye.

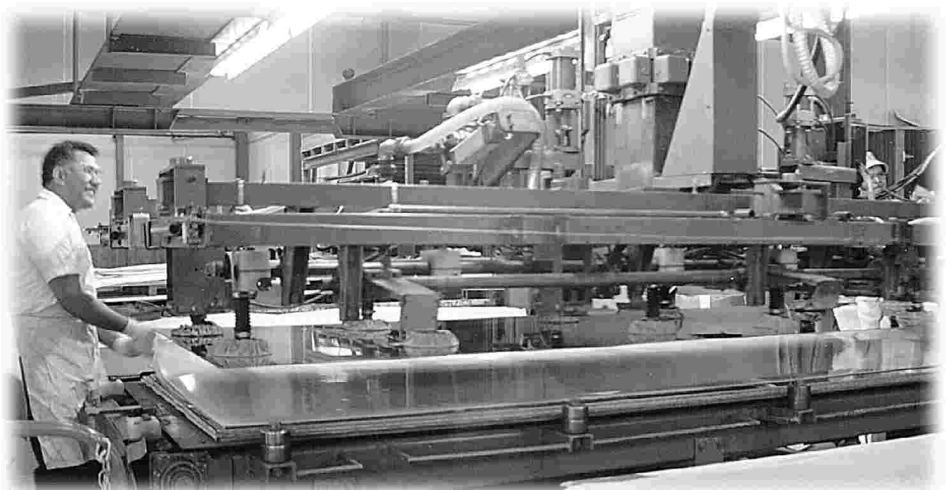
BURKE AND SIX SIGMA

Shortly after Welch announced the Six Sigma initiative in 1996, Burke Customer Satisfaction Associates (Burke CSA) began working closely with two key divisions of GE: GE Power Systems (GEPS) and GE Motors & Industrial

Systems (GEM&IS) to implement the program.

For GE Power Systems, Burke CSA conducted large-scale qualitative programs that included site visits to customers in 13 countries and quantitative surveys with customers from 18 countries. The worldwide results were presented to every Regional Customer Team (RCT) through an extensive on-the-job-training program.

As an example, one survey focused on Parts — a \$1 billion, high-margin business of GE. The survey results were used to focus a number of Black Belt projects on pricing, delivery, quotes and responsiveness of the customer service representatives in the Part Center. A Black Belt project is a focused team effort led by a highly trained quality expert (GE and other companies call them "Black Belts") designed to fix problems that cause defects. Black Belt projects undergo a rigorous evaluation to prove the cost saving from eliminating or reducing the defect.



Burke CSA also assisted GEM&IS in the development of its Customer Loyalty Program. Burke CSA coordinated a Steering Group comprised of representatives from each of the five major business units. This Steering Group was responsible for all survey administration, interpretation of results and driving action within their respective businesses.

Throughout GE's Six Sigma process, Burke CSA has conducted quarterly surveys of GEM&IS customers in a variety of markets. Together, Burke CSA and the GEM&IS Customer Loyalty Steering Group have conducted quarterly planning and interpretation sessions. The Steering Group is responsible for communicating survey results to the business leaders and providing direction for quality improvement projects.

THE SIX SIGMA PROCESS

GE defines the following five steps as key components of the Six Sigma process (as presented in *CIO* magazine).

Define. A Six Sigma project team determines a project suitable for Six Sigma efforts based on business objectives as well as customer needs and feedback. As part of the definition phase, the team identifies those attributes, called CTQs, that the customer considers to have the most impact on quality.

Measure. The team identifies the key internal processes that influence CTQs and measures the defects currently generated relative to those processes.

Analyze. The team discovers why identifying the key variables that are most likely to create process variation generates defects.

Improve. The team confirms the key variables and quantifies their effects on the CTQs. It also identifies the maximum acceptable ranges of the key variables and validates a system for measuring deviations of the variables. The team modifies the process to stay within the acceptable range.

Control. Tools are put in place to ensure that under the modified process the key variables remain within the maximum acceptable ranges over time.

IS SIX SIGMA RIGHT FOR YOUR COMPANY?

The return on investment a company can enjoy from successfully implementing Six Sigma can be enough to convince any CEO to launch right into this process. However, there are considerations to keep in mind before deciding to undertake such a massive effort.

For one, Six Sigma is expensive — GE has made a \$450 million investment thus far and is years away from achieving Six Sigma fully, according to *CIO* magazine — and requires a firm commitment from the highest corporate executive.

Secondly, it's not a quick fix. Six Sigma has a long payback cycle. Consider, for example, that it took Motorola a full

five years to see significant results, according to *CIO* magazine. Further, Six Sigma may be more trouble than it's worth for some industries such as retail and technology where the emphasis is on speed and innovation, versus quality-based operations or consulting where customer intimacy is the rule.

Another important factor to consider when deciding if Six Sigma is right for your company, is the current state of the company. According to Jim Jubelirer, senior consultant for Burke CSA in Chapel Hill, N.C., "The companies that have gone on record with documented multimillion-dollar savings have had a lucky confluence of a charismatic CEO and an intact management team that could execute."

Data collection methods can be another pitfall of the Six Sigma effort. Jubelirer, who has worked with many companies including GE to implement Six Sigma initiatives, said "I have unlimited horror stories about companies' lousy computer systems. Say all I need is customer records. Many companies don't have those records. Or there is one system that keeps purchase and accounting data and another system for name and addresses and you can't merge the two."



¹*CIO* magazine, "Practice Makes Perfect," Lauren Gibbons Paul, January 15, 1999. (www.cio.com)

Burke