Samsung Uses Six Sigma To Change Its Image

KOREAN GIANT DEVELOPS A REPUTATION FOR INNOVATION, EFFICIENCY AND QUALITY.

By Jong-Yong Yun, Samsung Electronics Co., and Richard C.H. Chua, Juran Institute Inc.

Samsung Electronics Co. (SEC) of Seoul, Korea, is perfecting its fundamental approach to product, process and personnel development by using Six Sigma as a tool for innovation, efficiency and quality.

SEC was founded in 1969 and sold its first product, a television receiver, in 1971. Since that time, the company has used tools and techniques such as total quality control, total process management, product data management, enterprise resource management, supply chain management and customer relationship management. Six Sigma was added to upgrade these existing innovations and improve SEC’s competitive position in world markets.

The financial benefits made possible by Six Sigma, including cost savings and increased profits from sales and new product development, are expected to approach $1.5 billion by the end of 2002.

Strategic Objective

SEC wants to be a borderless, global brand that is a household word wherever its products and services are available.

SEC’s strategic objective is to create both qualitative and quantitative growth and deliver competitive value to all stakeholders—customers, partners and shareholders—while maintaining profitability.

The objective is focused on the value chain of the company’s four major businesses—home, mobile and office networks and core components. The emphasis is on creating a solid framework for these businesses by optimizing the supply chain to make operations as efficient and timely as possible.

To achieve the goal of efficiency and timeliness, SEC has integrated Six Sigma into its entire business process (see Figure 1, p. 15). SEC saw the universal adoption of Six Sigma throughout the company’s 16 businesses worldwide as the way to perfect its fundamental approach to product, process and personnel development.

Deployment

As a foundation for its Six Sigma thrust, SEC began by pursuing a pervasive goal of developing its internal resources, especially people, to put innovation first in the development and design of products, in manufacturing and marketing, and in the growth of employees.

With its strategic objectives established, the foundation was ready for the Six Sigma process to begin in late 1999 and early 2000 with training for SEC’s
Jong-Yong Yun leads Samsung’s Six Sigma initiative, which is propelling innovation, efficiency and quality.
management, Champions and other employees responsible for deployment planning. The Juran Institute Inc. provided this training.

After only three years of deployment, the number of Master Black Belts (MBBs), Black Belts (BBs) and Green Belts (GBs) already approaches 15,000—or almost one of every three employees.

With a corporate goal of 100 MBBs, 3,000 BBs and 30,000 GBs by 2004, SEC obviously is serious about developing Six Sigma capability in a workforce of about 49,000 worldwide in 89 offices and 47 countries. No individual or operation in SEC is exempted from the training—including staff members in management, personnel, accounting and procurement.

BBs are expected to guide several projects per year, which further increases each project’s return on investment. Promotion and other awards and incentives are awarded by the operation in which each employee is assigned.

Starting in 2000, the use of the Six Sigma began in manufacturing using the define, measure, analyze, improve and control (DMAIC) discipline. This was then expanded to use design for Six Sigma using the DMAIC phases for designing new products. Transactional Six Sigma was applied next to business and support processes internally and externally where customer needs and interactions have become increasingly critical.

Through Sigma Park, an intranet site available worldwide to all SEC facilities, SEC provides reference materials, benchmarking opportunities, reports to senior management and enhancement for Six Sigma projects whose team members span several continents. Cross-border organizational learning is advanced as the Six Sigma methodologies are applied consistently from location to location.

Results

SEC completed 3,290 Six Sigma projects in 2000 and 2001; 1,512 of these were BB projects. In 2002, 4,720 projects are expected to be completed, 1,640 of them by BBs.

SEC’s Six Sigma projects have also contributed to an average of 50% reduction in defects between 1999 and 2001. There is no thought of improvement in quality and productivity without Six Sigma.

These impressive numbers have certainly played a major role in Samsung’s recent growth. Some indications of this include the following:

- By 2001, SEC had earned net income of $2.2 billion on total revenues of $24.4 billion. Market capitalization stood at $43.6 billion.
- According to SEC’s 2001 annual report, SEC now is one of the top 10 electronic and electrical equipment manufacturing companies in the world, with the best operating profit ratios and superior fiscal soundness.
- The report also says debt to equity ratio is lower than that of any top ranking company, and the shareholders equity to net assets ratio surpasses the average.
- SEC says its technological strengths, Six Sigma quality initiatives and product marketability helped

Figure 1. Samsung’s Strategic Objectives

- Secure best cost competitiveness and speed management structure.
- Secure customer and market oriented optimal process.
- Create a competitive IT infrastructure.

![Six Sigma Diagram](image-url)
increase its share of the memory chip market in 2001 to 29%, monitors to 21% and microwave ovens to 25% of those sold worldwide.

• Despite a downturn in the world economy and a reduction in exports to the United States, credit for SEC’s current operating profit margin of 8.5% is due mostly to quality improvements and Six Sigma deployment.

• SEC’s quality and innovative strategy helped it reach the number one position in the BusinessWeek 2002 information technology guide.1,2 The guide noted SEC’s computer monitors, memory chips, telephone handsets, and other digital products, focusing on four Standard & Poor’s criteria: shareholder return, return on equity, revenue growth and total revenues.

We believe the BusinessWeek ranking was also due to SEC’s employees’ belief that quality is the single most important reason for the company’s higher sales, lower costs, satisfied customers and profitable growth.

Only a few years ago, SEC’s products were virtually unknown by Americans or were known as the cheaper, lower quality substitute for Japanese brands. This perception is changing. The U.S. market now represents 37% of SEC’s total sales.

Lessons Learned

When implemented strategically, Six Sigma can help companies turn over working capital faster, reduce capital spending, make existing capacity available and new capacity unnecessary, and produce even better results from the design and R&D functions. Such outcomes also foster a working environment that stimulates employee development, motivation, morale, empowerment and commitment, leading to increased opportunities for promotions.

The four factors that have made Six Sigma successful throughout SEC’s international operations and culture are:

• Strong proactive support with required resources provided by top management.

• Acceptance and implementation of Six Sigma’s basic disciplines by employees.

• Linkage with all innovative and infrastructure activities.

• Accurate and fair evaluation of all successful Six Sigma projects, with meaningful recognition and rewards for employees.

A flattening of SEC’s organizational structure, making it much easier for key decisions to be made at lower levels, was another factor contributing to SEC’s successes from Six Sigma. BBS and MBBs are encouraged to act as change agents. Career development paths for these internal experts are evaluated continually to ensure a win-win alignment of individuals with company goals.

Six Sigma’s role in improving development and manufacturing operations has been well-documented. But not many people realize Six Sigma is making a major impact in a wide range of new functions and processes. These include transactional activities such as completing an invoice, designing procedures to improve cycle time and improving processes in human resources, accounting, business planning, sales, call centers and customer services.

In fact, all business processes are candidates for Six Sigma. SEC’s finance and marketing people have begun to embrace it. One reason this wider range of employees can participate in Six Sigma is that advanced computer software is making statistical tools easier to use.

In good and, even more, in bad economic times, businesses face challenging pressures to maintain a competitive edge in everything they do while enjoying productive and loyal relationships with customers, shareholders, employees and the complete supply chain.

That means, for example, optimizing cycle time and equipment usage; having fewer rejects or errors; improving response time to customer inquiries; reducing inspection, maintenance, inventory and other high costs; providing more employee development; and boosting the bottom line.

If there remains any doubt, a strong message for the broad technology industry is that the switch from analog to digital technology is rapidly accelerating. Any company that cannot change its work practices, product development and customer satisfaction levels quickly will disappear.

SEC intends to use Six Sigma and innovation to remain a leader in this digital convergence revolution.

REFERENCES

