



Six Sigma – Part 1: Getting Acquainted with Six Sigma Basics

An Online Continuing Education Course for Engineers

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Six Sigma – Part 1: Getting Acquainted with Six Sigma Basics

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Module 1

Better Business and Better Performance: Defining Six Sigma

In This Module

- ▶ Looking at the many definitions and synonyms of Six Sigma
 - ▶ Introducing the proven managerial horsepower of Six Sigma
 - ▶ Recognizing that Six Sigma isn't just another initiative-du-jour
 - ▶ Identifying a formidable business force
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Discovering What's Behind the Name

It's okay if you don't know what Six Sigma is at all, or don't understand every aspect of it. That's because Six Sigma — once a precise, narrowly-defined term — has grown over time to represent a number of concepts:

- ✓ *Six Sigma* is a problem-solving methodology. In fact, it's the most effective problem-solving methodology available for improving business and organizational performance.
- ✓ *Six Sigma performance* is the statistical term for a process that produces fewer than 3.4 defects (or errors) per million opportunities for defects.
- ✓ *A Six Sigma improvement* is when the key outcomes of a business or work process are improved dramatically, often by 70 percent or more.
- ✓ *A Six Sigma deployment* is the prescriptive rollout of the Six Sigma methodology across an organization, with assigned practices, roles, and procedures according to generally accepted standards.
- ✓ *The Six Sigma toolset* is the collection of methods and tools, including statistics and analytics, that Six Sigma practitioners use to consistently achieve breakthrough levels of improvement.
- ✓ *The Six Sigma methodology* is often combined in practice with Lean methods in a hybrid practice known as Lean Six Sigma or Lean Sigma.

Six Sigma is a methodology for minimizing mistakes and maximizing value. Every mistake an organization or person makes ultimately has a cost — a lost customer, the need to do a certain task over again, a part that has to be replaced, time or material wasted, efficiency lost, or productivity squandered. In fact, waste and mistakes cost many organizations as much as 25 to 40 percent of their revenue! That's a shocking number. Imagine throwing 25 to 40 percent of your money away in the garbage every time you cash a check. It may sound ludicrous, but that's what many organizations do.

All businesses, organizations, and individuals have room to improve. No operation is run so tightly that another ounce of inefficiency and waste can't be squeezed out. By their nature, organizations tend to become messy as they grow. Processes, technology, systems, and procedures — the ways of doing business — become cluttered with bottlenecks, meaning work piles up in one part of the organization while other parts sit idle with nothing to do.

Work is often performed incorrectly, or the outcome is flawed in some way. When this situation happens, you scrap products and services and have to do the work over again. You consume additional resources to correct a problem before it's delivered to the customer, or the customer asks later for a "redo" — a new product or a more satisfactory service.

Sometimes, flaws and defects aren't the problem, but a product or service simply takes too long to produce and deliver. Think about the problems a mortgage company would have if it processed home loans perfectly but did so five times more slowly than the competition. That's a perfect disaster.

Six Sigma was once a quality-improvement methodology, but now it's a general-purpose approach to minimizing mistakes and maximizing value: How many products can you produce, how many services can you deliver, or how many transactions can you complete to an expected level of quality in the shortest possible amount of time at the lowest possible cost?



Remember

Six Sigma takes effort and discipline and requires you to go through the discomfort of change. But soon the pain is transformed into improved performance, lower costs, more success, and happier customers.

No pain, no gain

The Six Sigma approach isn't for the faint of heart or for the unprepared organization. It's intense and rigorous, and it entails a thorough inspection of the way you do everything. Six Sigma sets ambitious business objectives and measures performance in a way that forces accountability. It doesn't allow a management team to become complacent; rather, it exposes waste that otherwise would remain largely invisible.

Six Sigma takes a business out of its comfort zone, but for a relatively short time. After the first project gains materialize and the money starts flowing to the profit margin, a cultural change takes hold. The early discomfort of changing business processes gives way to success, problems become opportunities for improvement, and the organization begins to enthusiastically leverage the methods and tools of Six Sigma more pervasively and with a keen eye on value.

Tackling Six Sigma from the Managerial Perspective

Although Six Sigma has many definitions, Six Sigma action occurs on two levels: the *managerial* and the *technical*. This module introduces the managerial level, while the next module begins to look at the technical side.

At the managerial level, a Six Sigma initiative includes many units, people, technologies, projects, schedules, and details to be managed and coordinated. It also involves developing many plans, taking many actions, and completing a lot of specialized work. For all these factors to work in concert, and for the technical elements of Six Sigma to be effective, you have to set the proper management orientation.

Bridging science and leadership

From a management standpoint, you use Six Sigma to achieve predictability and control of performance in a business or a business process by applying the methods of science to the domain of leadership.

The achievements of machinery, technique, process, and specialization of labor have collectively enabled the explosion of mass production and the consumer society. Science dictates how all the parts, materials, machines, and people on the assembly line interact to turn out many “widgets” at the highest possible speed and the lowest possible cost.

Chalking up radical corporate success

Six Sigma helps organizations achieve breakthrough improvement, not incremental improvement. In short, Six Sigma is a path to dramatic improvement in value for your customers and your company. Companies engaged in Six Sigma have realized staggering business success.

- ✓ **General Electric** profited between \$7 to \$10 billion from Six Sigma in 2004.
- ✓ **Dupont** added \$1 billion to its bottom line in 2004, and that number increased to \$2 billion in 2005.

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Countless times in the United States, people open a water faucet and experience the flow of clean, clear water, which is possible because reliable purification systems treat the water and pressure systems ensure the water is there. This kind of dependability is what Six Sigma provides: It treats the processes in a business so that they deliver their intended results reliably and consistently.