



What Is Six Sigma?

Knowledge is power.

—Francis Bacon (1561-1626)

Do you know, do you really know, what's going on in your organization? The assertion that knowledge is power rings as true today as it did four centuries ago. In any industry, organization, or daily process, when you don't know *what* you don't know, it's going to cost you. For too many organizations the costs (often hidden) of defects and waste in the way they operate are huge.

Having processes in which errors occasionally occur may not seem such a big deal. But when you consider how many errors may be lurking in company-wide processes, the monetary impact on overall productivity, customer satisfaction, and profitability multiplies dramatically! The Six Sigma approach to managing is all about helping you identify what you don't know as well as emphasizing what you should know, and taking action to reduce the errors and rework that cost you time, money, opportunities, and customers. Six Sigma translates that knowledge into opportunities for business growth.



Process Any repetitive action—be it in a transactional, manufacturing, or services environment. The Six Sigma methodology collects data on variations in outputs associated with each process, so that it can be improved and those variations reduced.

Many companies believe that dealing with errors is just part of the cost of doing business. But you don't have to accept that faulty logic. With Six Sigma, you can eliminate most errors, reduce your costs, and better satisfy your customers.

Six Sigma Defined and Explained

Six sigma is a statistical concept that measures a process in terms of defects. Achieving six sigma means your processes are delivering only 3.4 defects per million opportunities (DPMO)—in other words, they are working nearly perfectly. Sigma (the Greek letter σ) is a term in statistics that measures something called standard deviation. In its business use, it indicates defects in the out-



Sigma A term used in statistics to represent standard deviation, an indicator of the degree of variation in a set of measurements or a process.

Six sigma A statistical concept that measures a process in terms of defects—at the six sigma level, there are only 3.4 defects per million opportunities. Six Sigma is also a philosophy of managing that focuses on eliminating defects through practices that emphasize understanding, measuring, and improving processes.

puts of a process, and helps us to understand how far the process deviates from perfection. (We'll get into the statistics in later chapters.)

A sigma represents 691462.5 defects per million opportunities, which translates to a percentage of nondefective outputs of only 30.854%. That's obviously really poor performance. If we have processes

functioning at a three sigma level, this means we're allowing 66807.2 errors per million opportunities, or delivering 93.319% nondefective outputs. That's much better, but we're still wasting

money and disappointing our customers.

How well are your processes operating? Are they three sigma? Four sigma? Five?

Most organizations in the U.S. are operating at three to four sigma quality levels. That means they could be losing up to 25% of their total revenue due to processes that deliver too many defects—defects that take up time and effort to repair as well as creating unhappy customers. Is that good enough? The answer is simple. No it's not when you could be doing a lot better. Helping you do that is what this book is about.

The central idea of Six Sigma management is that if you can measure the defects in a process, you can systematically figure out ways to eliminate them, to approach a quality level of zero defects.


So, in short, Six Sigma is several things:

- A statistical basis of measurement: 3.4 defects per million opportunities
- A philosophy and a goal: as perfect as practically possible
- A methodology
- A symbol of quality

Six Sigma in Context

Let's take an example, an all-too-familiar scenario: lost luggage at the airport. Many of us have experienced the frustration of watching the baggage carousel slowly revolve while waiting for luggage that never arrives. The system is far from perfect. But just how far, in sigma measurement terms?

In general terms, the baggage handling capability of many airlines is performing at around the three sigma level. That means



Defect A measurable characteristic of the process or its output that is not within the acceptable customer limits, i.e., not conforming to specifications. Six Sigma is about practices that help you eliminate defects and always deliver products and services that meet customer specifications. The sigma level of a process is calculated in terms of the number of *defects* in ratio to the number of *opportunities* for defects.

4 Six Sigma for Managers

there are about 66,000 “defects” for every one million luggage transactions, which equates to an approximate 94% probability that you’ll get your luggage. Is that good enough? Certainly not for the customers whose bags are among the “defects.” The “defects” increase costs for the airlines, because employees must deal with misplaced luggage and unhappy passengers. And those “defects” can result in lost business in the future.

If the airline moves to six sigma in luggage handling, it clearly pays off in terms of lower costs and happy passengers, who are then more likely to fly with that airline again.

As Figure 1-1 indicates, operating at anything less than six sigma levels means your processes have higher probabilities of delivering defects.

It may seem like three sigma is good enough. After all, if

Sigma Level (Process Capability)	Defects per Million Opportunities
2	308,537
3	66,807
4	6,210
5	233
6	3.4

Figure 1-1. Probability of defects of different sigma levels


there are 66,807 defects out of a million, that means that 933,193 things went well—93.319% perfection.

But if the airline is taking comfort in those statistics, it’s losing money and losing customers. Consider this three sigma level from another perspective.

For *customers*, three sigma represents highly unsatisfactory performance. The airline is not meeting their most basic expectation—that their luggage will be put on the same flight, to travel with them to the same destination. So the airline is likely to be losing many of those frustrated customers.

Three sigma is also costing money. Variations—time, waste, and errors—abound in the baggage-handling process: misrouting the baggage, reporting the problem, processing the report, searching, retrieving, and finally delivering the lost luggage. When you translate the 6% probability gap of missing luggage into monetary terms, the hard cost of this defect can be much higher than 6% of the overall cost of handling luggage—perhaps several million dollars per year. If the baggage-routing process were improved, the margin for error would be reduced and the allocation of resources, both human and monetary, could be much more profitably used.

How many customers can your business afford to lose? How much money can your company afford to lose because of mistakes? Why accept it as normal to be running processes at only three sigma or four sigma when, by changing the way you manage your processes, you could get a lot closer to six sigma and all the resulting benefits.



Variation Any quantifiable difference between a specified measurement or standard and the deviation from such measurement or standard in the output of a process. Variation in outputs can result from many causes in the functioning and management of processes. An important goal of process improvement is to reduce variation in outputs.

Six Sigma uncovers the layers of process variables—in data terms—that you must understand and control to eliminate defects and wasteful costs. It’s a management approach that aims to achieve the apex of quality by measuring, analyzing, improving, and controlling processes to root out defects and boost bottom-line results.

A Little History of Quality

Many people associate Six Sigma with the quality movement. So, it seems logical at this point to start from that perspective. How does Six Sigma differ from the “quality” programs you may have already experienced? To answer that question, let’s briefly recap the history of the quality movement.

6 Six Sigma for Managers

No understanding of the quality movement would be complete without mentioning the visionary W. Edwards Deming, best known for helping the Japanese revitalize their industries after World War II. His approach was radically new and had significant impact on the evolution of quality and continuous improvement programs in organizations around the world.

It is fair to say that Deming's management approach, which



Total Quality Management (TQM) A management approach that

focuses on the organization as a system, with an emphasis on teams, processes, statistics, continuous improvement, and delivering products and services that meet and exceed customer expectations. Six Sigma is a disciplined extension of TQM.

came to be known as Total Quality Management or TQM (though Deming didn't like that term), has changed the way thousands of companies conduct their operations. By the mid-1980s, the extent to which corporate management was focusing on *quality* was significant:

businesses adopting TQM underwent a major paradigm shift, a transformation of “unlearning” everything previously believed about business to create better products and services. They began to understand that quality did not require higher costs but more efficient and reliable processes that delivered defect-free outputs and that they had to focus on process improvement and customer satisfaction. TQM is an excellent foundation from which to build toward the next level of quality management, represented by the Six Sigma approach.

But Six Sigma is far more than the latest “quality” trend. The proof? Companies that have implemented Six Sigma have achieved outstanding financial results and developed a disciplined, pragmatic plan for improved financial performance and growth.

Companies such as Motorola, Texas Instruments, IBM, AlliedSignal, and General Electric have successfully implemented Six Sigma and reduced costs literally by billions of dollars. More recently Ford, DuPont, Dow Chemical, Microsoft, and

Six Sigma at Motorola

Six Sigma was conceptualized as a quality goal in the mid-1980s at Motorola because technology was becoming so complex that traditional ideas about acceptable quality levels were inadequate. As the number of opportunities for defects increases, the percentage of perfection must rise. In 1989 Motorola announced a five-year goal—a defect rate of not more than 3.4 parts per million—six sigma. This initiative challenged ideas of quality in the U.S. and changed the concept of quality levels. It was quickly no longer sufficient to measure quality as percentages (defects per hundred opportunities). Now the bar was raised, to measure defects per million or even per billion.



American Express have started working on instituting the Six Sigma methodology. But it's about more than money. Jack Welch, the CEO who started Six Sigma at General Electric, called it “the most important initiative GE has ever undertaken,” and said that Six Sigma is “part of the genetic code of our future leadership.”

Essentials of the Six Sigma Methodology

The Six Sigma methodology uses statistical tools to identify the *vital few factors*, the factors that matter most for improving the quality of processes and generating bottom-line results. It consists of four or five phases:

- *Define* the projects, the goals, and the deliverables to customers (internal and external).
- *Measure* the current performance of the process.
- *Analyze* and determine the root cause(s) of the defects.
- *Improve* the process to eliminate defects.
- *Control* the performance of the process.

We'll outline these phases in Chapter 6.

We should note that Six Sigma methodology is not rigid. Approaches vary, sometimes significantly. One of the variations is in the phases: some approaches use all five of the phases listed above, while others do not include the Define phase. Six



Vital few factors Factors that directly explain the cause-and-effect relationship of the process output being measured in relation to the inputs that drive the process. Typically, data shows that there are six or fewer factors for any process that most affect the quality of outputs in any process, even if there are hundreds of steps in which a defect could occur—the *vital few*. When you isolate these factors, you know what basic adjustments you need to make to most effectively and reliably improve the outputs of the process.

Sigma professionals recognize that this approach is a kind of roadmap for improvement, and it doesn't matter if it's called DMAIC, MAIC, PCOR (from the Air Academy—prioritize, characterize, optimize, and realize), GETS (from GE Transportation Systems—gather, evaluate, transform, and sustain). The point is that this is a set of tools aimed at helping managers and employees

understand and improve critical processes.

Six Sigma is based on a few key concepts, which we'll cover in later chapters:

- Defect
- Variation
- Critical-to-quality
- Process capability
- Design for Six Sigma

Six Sigma focuses on defects and variations. It begins by identifying the critical-to-quality (CTQ) elements of a process—the attributes most important to the customer. It analyzes the capability of the process and aims at stabilizing it by reducing or eliminating variations.

Simply put, Six Sigma management is about tying quality improvement *directly* to financial results. The Six Sigma goal is to link internal processes and systems management to end-consumer requirements. Six Sigma is a scientific approach to management, driven entirely by data. The Six Sigma methodology eliminates the use of opinion—"I think," "I feel," or "I

believe.” Six Sigma drives the organization to a more scientific means of decision making by basing everything on measurable data.

Focus on Engaging People and Changing Processes

The first thing to know about Six Sigma is that it doesn't rely on the latest program fads or “magic pills” to fix organizations. It relies on old-fashioned hard work coupled with factual data and a disciplined problem-solving approach. It affects every aspect and level of an organization—from line workers to middle managers to CEOs—to transform your *people* and your *processes*.

As the first step in that transformation, the Six Sigma mindset considers you and your people as *assets*, rather than as *costs* (liabilities). That's right—you are as much an asset as any piece of capital equipment, and you represent an investment with extraordinary potential for return. Shifting the perspective on people from liabilities to assets (or investments) is fundamental to Six Sigma.

Once you're thinking in terms of “human assets,” it's equally important to realize the underlying monetary value of rooting out wasted materials and steps



Process capability A statistical measure of inherent variation for a given event in a stable process. It's usually defined as the process width (normal variation) divided by six sigma and quantified using *capability index* (C_p). More generally, it's the ability of the process to achieve certain results, based on performance testing. Process capability answers the question, What can your process deliver?



It's Not Just the People

Managers often tend to focus just on people in their organization. When something goes right or something goes wrong, they look for a person to congratulate or to blame. The fact is that work gets done through processes executed by people; both successes and problems are usually the result of what lots of people do, not just one person. If you don't pay careful attention to both people and processes, improvement will not happen.



Smart Managing

Seeing Employees as Assets

An easy way to understand the concept of human assets is to calculate their individual return on investment (ROI). For example, if an employee costs the business \$50,000 a year and his or her activity produces revenue of \$100,000, the employee has covered the costs and raised an additional 100%—the profit or return. So, the annual ROI for that employee is 100%. By calculating employee ROI, you can focus on making the most of them as assets invested in your business.

in processes, as this is key to unlocking the hidden return on your investment in people. And that's also another aspect of the Six Sigma approach to managing.

By changing the way you look at processes, by understanding the vital few factors that cause waste, error, and rework, you can improve the ability of your processes to deliver higher quality to your customers and to lower costs. Once you know which vital few factors to focus on, you can make improvements that deliver dramatic results.

Sound simple? It is once you put your mind to it. By putting your people to work at solving process problems with proven statistical tools, you eliminate not only errors, but also inaccurate speculation about why processes don't work. Again, instead of opinion, you arm yourself and your people with quan-

tifiable information—based on facts, not hunches and guesswork. When you know the facts, you are in a position to fix the problems permanently and gain long-term benefits. In other words, you've leveraged the power of knowledge to transform performance.




Elevator Talk

A CEO of a major corporation once asked me, "What's the 30-second elevator speech that explains Six Sigma?" My answer went like this: "Six Sigma is a problem-solving technology that uses your human assets, data, measurements, and statistics to identify the vital few factors to decrease waste and defects while increasing customer satisfaction, profit, and shareholder value."

Not Just Statistics, but Cultural Changes

Because it uses statistical terminology, Six Sigma is frequently perceived as a statistics and measurement program. This is not the case. The Six Sigma approach to management uses statistics solely as tools for interpreting and clarifying data. You focus on tool selection and the use and interpretation of data to drive decisions. Six Sigma practitioners also use computers and statistical software to take advantage of knowledge and speed the improvement process. The ultimate goal is to create Six Sigma companies—companies whose systems and processes are as perfect as possible, functioning at their best performance level.

To achieve that level of quality requires not just statistics, but changes in the culture of the organization. The Six Sigma approach is rigorous, requiring a deep commitment from the highest levels of management that permeates the entire organization. It requires a tolerance for endlessly questioning the validity of sacred company beliefs and the traditional ways “things are done around here.” It also requires a sense of urgency—an understanding that, in order to solve the problems that undermine profitability and customer satisfaction, you need to involve your key people in actively implementing the Six Sigma methodology.



Culture Refers to the beliefs, expectations, ways of operating, and behaviors that characterize the interactions of people in any organization. It's about “how things are done around here” in an organization. Culture evolves over a long period of time and it often reflects the beliefs and behaviors of top management. Because Six Sigma affects the way things are done, its successful implementation will require a change in culture that may be profound.

Champions and Black Belts

The Six Sigma approach to management involves cultural change. Essential to this cultural change are key players known

as *champions* and *black belts*, who act as agents to facilitate that change. These two titles play pivotal roles in the success of Six Sigma management, as we'll outline in Chapter 5.

A champion, generally selected from the ranks of upper



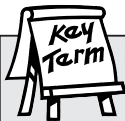
Champion A senior-level manager who promotes the Six Sigma methodology throughout the company and especially in specific functional groups. The champion understands the discipline and tools of Six Sigma, selects projects, establishes measurable objectives, serves as coach and mentor, removes barriers, and dedicates resources in support of black belts. A champion “owns” the process—monitoring projects and measuring the savings realized.

management, serves as a coach, mentor, and leader—supporting project teams and allocating necessary resources.

A black belt leads a defined project on a full-time basis, working strictly on defining, measuring, analyzing, improving, and controlling processes to reach desired outcomes. Black belts do nothing else; their only responsibility is to root out variation

and identify the vital few factors. They devote 100% of their energies to the chosen project, supported by project team members. So, why the martial arts terminology? Because a black belt's sole function is to focus on disciplined problem solving, practice specific skills, use a defined set of tools, and defeat the enemy—processes that deliver defective outputs.

There are other roles and levels in Six Sigma, which we'll cover in Chapter 5, but none as important as the black belt—



Black belt A full-time change agent trained in the methodology to solve product and process defects project by project with financially beneficial results. A black belt does Six Sigma analyses and works with others (often teams) to put improvements in place.

the fully dedicated, thoroughly trained agent of improvement. The black belts are the people who apply the Six Sigma techniques to organizational problems and help change organization culture to focus on continuously get-

ting better in every aspect of performance. They harness the power of knowledge to achieve enhanced performance, customer satisfaction, and profitability—which is what it’s all about. The average black belt improvement project results in a return of approximately \$175,000 to the bottom line. And since black belts work on four to six projects per year, think what that can mean when multiplied by the number of potential projects in your organization!


Six Sigma is exciting. But it requires tenacity, mental toughness, and, above all, an unwavering dedication to the pursuit of perfection in every aspect of business operations. Once you’ve fully embraced that, the possibilities are virtually limitless in what you can achieve.

Six Sigma Applied

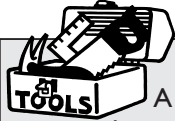
So how do you go about linking people to processes and practically applying what Six Sigma promises? That’s the subject of this book. But, to give you a quick idea of what lies ahead, here’s an example to show how Six Sigma works.

The CEO of a diversified *Fortune* 50 company gave the president of the financial services group the task of improving its net income by 10% and meeting a stretch target of 25%. The consequences of not meeting the CEO’s directive would be dire—the division would be liquidated or sold off. A further wrinkle in meeting these requirements was that the CEO, a Six Sigma advocate, insisted this approach be used to achieve the stated breakthrough goal.

Breakthrough goal A dramatic, near immediate, and significant improvement. In measurement terms, reaching a breakthrough goal represents an improvement of 60% to 80%.



The president of the financial services group then gave her direct reports and management staff the task of improving net income by the stretch target of 25% and reiterated the CEO’s directive to use Six Sigma methodology to do this. Clearly, all of the managers had



Meeting Stretch Targets

A stretch target is the concept of looking beyond meeting basic requirements and exceeding your own expectations. When you understand that your defined goals are within reach, you need to shift your mindset to go farther, to reach higher, to stretch your capabilities. And when you do that, you realize far greater results than you initially thought possible.

What if you don't hit your target? You'll still have raised your bar: a stretch goal is a powerful way to motivate everyone to do better. Try it—you'll be surprised at how possible the "impossible" is!

their work cut out for them. They all realized that there was plenty of waste in their processes, but they didn't know how to identify the problems and eliminate this waste to reduce their costs.

Financial Services

Let's consider the financial services division, whose primary business focus is in loans. To find out which processes generated the most variation, the very first step was to ask the fundamental question: how do we make our money? Since the answer was "loans," managers needed to deploy the Six Sigma methodology to discover the facts about the dollars they were losing—what, who, when, where, and how in the loan process. In short, they needed to know what they didn't know.

As we mentioned earlier, Six Sigma begins by identifying the critical-to-quality (CTQ) elements of a process. In the residential loan department, the manager (we'll call him Greg) defined the CTQ metric as the loan approval process time. Specifically, he determined that the process should take only two days from receipt of the application. Anything else would be considered a "defect." The department was not meeting the specification, since the average loan approval took a full seven days. The five-day variance was the defect—the waste in the process.

Greg's loan processing department processed about 10,000 loans per month, with an average loan value of \$25,000. The department was not measuring the money value of time lost in

processing loans, which according to his specification meant losing five days of interest a month or 60 days a year. That translates to about two months' worth of interest payments on \$25,000,000. Given an average interest-rate yield of 10%, this meant the department was losing approximately \$400,000 per year because of the critical-to-quality factor of variance in loan processing time.

Once Greg identified the CTQ factor, he could specify the project—the way he would root out that waste by examining every process step and measuring the results. The goal was to identify what steps were causing this time variance.

There are three important components that characterize a Six Sigma project:

1. A critical-to-quality metric
2. An actual cost associated with a defect affecting the CTQ metric
3. A specific time frame for eliminating the defect to attain the CTQ metric

Now that Greg had his project parameters, he could assemble a team and lead them in his black belt role, focusing solely on determining the vital few factors standing between the process and its target performance.

His boss acted as the champion, ensuring that Greg and his team received all the necessary resources, removing any barriers, and informing upper management about the project's progress. Greg had a vested interest in the project's outcome: his division would benefit and so would he, since his performance bonus was tied to and measured by the project's results!

The Six Sigma five-phase sequence of DMAIC (Define, Measure, Analyze, Improve, and Control) was about to begin.

Critical-to-quality (CTQ)

Elements of a process that significantly affect the output of that process. Identifying these elements is vital to figuring out how to make the improvements that can dramatically reduce costs and enhance quality.



The Magic of DMAIC

Six Sigma statistical tools work like magic to uncover what you don't know. Yet you don't have to be a statistician to use them: you focus on selecting tools, using them, and analyzing data and let the specific software do the calculations. The five-phase process of DMAIC, described earlier in this chapter, uses a collection of tools and is a logic filter to lead you to the vital few factors affecting your process outcomes:

- *Define*—Determines the project goals and deliverables to customers (internal and external).
- *Measure*—Identifies one or more product or service characteristics, maps the process, evaluates measurement systems, and estimates baseline capability.
- *Analyze*—Evaluates and reduces the variables with graphical analysis and hypothesis testing and identifies the vital few factors for process improvement.
- *Improve*—Discovers variable relationships among the vital few, establishes operating tolerances, and validates measurements.
- *Control*—Determines the ability to control the vital few factors and implements process control systems.

In other words, the *Define* phase sets the targets for the Six Sigma project, the *Measure* and *Analyze* phases characterize the process, and the *Improve* and *Control* phases optimize the process and then maintain it.

In the Define phase, Greg determined that the project goal was to reduce the time for approving a loan to two days.

In the Measure phase, Greg started to map the loan application process. He identified four key areas: application form process, credit checking, management approval, and other areas, including rechecking and reapproving the loan application—virtually a built-in “rework” loop that was impacting the bottom line.

Once process mapping was complete, components were further broken down into the vital few inputs in the Analyze

phase. In the case of the loan application form, the output was 100% completion of all form information. That created a baseline for defining a defect, as missing vital information on the form. Other process outputs causing waste were the four approval layers and unnecessary inspection points.

That may sound minor, but consider the rework and time value of “fixing” information at a later point in the process and then multiply that by the volume of loans. Once again, the exponential cost of a small defect soars.

In the Improve phase, the team developed the relationship equation between the application form (inputs) and loan funding (outputs) and prepared the way for the Control phase, which implemented changes. One of those changes was in the software. Now employees had to complete each field on the form before moving on to the next: the software would not let them skip ahead until they got the right information the first time.

Greg achieved his goals: by stopping rework on the application form, he reduced staff overtime, increased productivity, satisfied applicants with faster funding and met the breakthrough goal—reducing monthly operational costs by \$60,000. Prior to the project, monthly loan processing costs were about \$150,000; by removing \$60,000 of waste, Greg trimmed that to \$90,000 and achieved a 50% reduction in process time—yielding another \$200,000 in additional interest payments. Now, that’s a significant financial result! Needless to say, Greg got his bonus and the division stayed intact.

Turning Process Variation into Dollars

Process variation exists in every transaction, department, and business unit. From the micro to the macro perspective, using Six Sigma methods allows you to *define* goals and set specifications, *measure* process characteristics and estimate baseline capability, *analyze* the variables and identify the vital few factors, *improve* the process, and *control* the vital few factors and implement process control systems. Using the DMAIC approach, you can dig out waste and return hidden dollars to your bottom line.



Link Six Sigma Goals and Company Objectives

Six Sigma projects require well-defined problems and breakthrough goals. For example, in the case of the *Fortune* 50 company, the 10% net income goal is the immediate, defined goal. Not meeting it will result in clearly adverse consequences for the company. As long as you know what you're measuring and can tie that to the specific breakthrough goal, you've got the charter to achieve the outcome.

What Six Sigma Is Not

Six Sigma is not another quality program. That's an important point to emphasize.

Businesses exist for one purpose—to profitably serve customers. So it follows that any problem-solving initiative should do the same. Six Sigma uses your resources to fix identifiable, chronic problems. It proves its value by connecting outcomes to your bottom line.

Quality programs lay a valuable foundation in creating a quality mindset. But ask yourself if any you've experienced have generated specific financial results like Six Sigma. It's very possible you'll answer, "No," since a primary criterion for selecting Six Sigma projects is to return money to your balance sheet as the result of *full-time* efforts by dedicated resources.

Six Sigma is not theory. It's a practice of discovering the vital few processes that matter most. It defines, measures, analyzes, improves, and controls them to tie quality improvement directly to bottom-line results.

Six Sigma is an active, involved effort that puts practical tools to work to root defects at all levels of your organization. It's not a theoretical exercise: you don't *think* about Six Sigma—you *do* it.

Since the success of Six Sigma is directly linked to monetary outcomes, it generates real-world results. It uses the most readily available resources in an organization—its human assets. That means that positive, tangible results consistently show up wherever and whenever people are engaged in implementing Six Sigma techniques.

Six Sigma Is Not Another Quality Program



Quality programs are valuable in that they can create a quality perspective and culture. But Six Sigma fixes identifiable, chronic problems that directly impact your bottom line. Six Sigma projects are selected to reduce or eliminate waste, which translates into real money.

Six Sigma is not theory. It defines, measures, analyzes, improves, and controls the vital few processes that matter most, to tie quality improvement directly to bottom-line results.

Six Sigma is not a training program. Of course, practitioners are trained in the methodology to ensure correct implementations and results. But Six Sigma is a business strategy that fosters a cultural shift at all levels. Permeating departments, functional groups, and all levels of management, Six Sigma changes the outlook and practices of everyone in the organization.

From workers on assembly lines and bookkeepers in accounting to operations managers and human resource personnel, training exists only to instill the method, facilitate transformation, and get financial results by attacking chronic defects with proven statistical tools.

Six Sigma Myths



There are many myths and misunderstandings about Six Sigma. And as you participate in it, you'll probably hear at least one of the following:

- Six Sigma ...
- ... works only in manufacturing settings.
- ... doesn't include customer requirements.
- ... is repackaged TQM.
- ... uses difficult-to-understand statistics.
- ... is an accounting game without real savings.
- ... is just training.
- ... is a "magic pill" with little effort.

Just remember that Six Sigma actively links people, processes, and outcomes in a rigorous, adaptable way to get you the results you're looking for. No matter the industry, business, product, or service, as you apply Six Sigma, you'll see the tangible results on your projects.

We began this chapter with an important quote—“Knowledge is power.” Six Sigma helps you identify what you don’t know, indicates what you should know, and helps you reduce defects that cost time, money, opportunities, and customers.

Will you achieve a six sigma level of quality, only 3.4 million defects per million opportunities—99.9997% perfect? That’s really not the question. The question is “How much are process variations and defects costing you?” If you don’t have that knowledge, you don’t have the power to reduce or eliminate those problems and achieve significant savings.

This book will help you acquire that valuable knowledge about your processes—and about the Six Sigma techniques and tools to convert problems into profits.

Manager’s Checklist for Chapter 1

- ❑ Six Sigma is the optimum level of quality for organizations, averaging 3.4 defects per million opportunities. It can be applied to any transaction in any business.
- ❑ Six Sigma is not a theoretical exercise, statistics, or training system. Although it’s based on the foundation of TQM, Six Sigma is not a quality program.
- ❑ Six Sigma is the active deployment of statistical tools that eliminate variation, defects, and waste from all business processes and that are linked to significant financial results.
- ❑ Six Sigma deploys human assets and specified projects to effect lasting change in processes and meet stretch targets via a disciplined, five-phase approach that unearths variation and directs the precise steps for improvement.