



SIX SIGMA ONLINE  
Aveta Business Institute

# Six Sigma Certification Program

## *White Belt Lesson 2: Six Sigma History*

The Six Sigma Methodology is one of the most popular business practices used today. Employees of the Motorola Corporation, which manufactures wireless infrastructure technology, are credited as the first to create and implement this methodology in the mid-1980s. Many other quality control methods such as ISO 9000 or Total Quality Management (TQM) have come and gone, but Six Sigma remains as the most popular method currently in use.

The Motorola Corporation has reported saving upwards of 16 billion dollars by using these concepts over the years. Many other companies have adopted this methodology as more than just a quality control system, but also as a total business plan. It has been praised by major leaders of industry such as the Chief Executive Officers of General Electric and The Honeywell Corporation. Even though the history of the Six Sigma Methodology spans only a few decades, it is now considered a vital part of quality development and efficiency in the top corporations of the world today.

Taking a deeper look at its name, one will gain insight into the brains behind the method. The word, sigma, has been used by mathematicians and engineers for many years as a symbol for a unit of measurement of variation called standard deviation. Several hundred years before the Motorola engineers coined the term, 'six sigma', Carl Frederick Gauss (1777-1855), the first scientist to introduce the concept of the normal curve, used the same basic idea as a measurement tool. In the 1920's, Walter Shewhart used the same concept to display how three sigma, or three standard deviations away from the mean, is where a production process will need to be corrected.

In other words, Shewhart demonstrated that once a manufacturing process deviates three standard deviations away from the mean (or average), the product must then be remade or it will not pass quality inspection. Now symbolic with high standards, the word 'sigma' has become a popular 'buzz word' used in the names of a variety of products. Products such as cosmetics and camera lenses are given this word in their brand name to symbolize a high level of quality control.

The Six Sigma Process as we know it today was first developed in the 1980s by Motorola engineers as their company was facing a 'make it or break it' time in history where they needed to drastically improve the quality of the products they were offering world-wide in order to both stay afloat and continue to succeed into the future.



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The Motorola engineers had more than just a competitive inspiration to drive them to a higher quality standard. Motorola got a wakeup call in the early 1970's. In 1972, a Japanese firm took over a Motorola factory that made televisions. Over a short period of time, the televisions produced by this plant had 1/20th the amount of defects than before the Japanese firm took it over. News of this prompted the then CEO of Motorola, Bob Galvin, to challenge the Motorola employees to improve the company by ten times over the next five years. Mikel Harry and Bill Smith were Motorola engineers who quickly rose to Galvin's challenge.

The two began working closely together on the design and implementation of this new and innovative system now called Six Sigma. By 1987, Galvin had launched the Six Sigma Quality Program in which he injected this methodology into the veins of the entire Motorola Corporation. By 1989, Galvin invited Harry to be the head of the Six Sigma Research Institute. Mikel Harry is now the leading authority on the theory of its practices. By the mid 1990's, as the word spread through the corporate belt, major companies like General Electric were on the same Six Sigma quality control bandwagon.

Though the actual working definition of the term, Six Sigma, now differs from company to company and from country to country, the idea behind it is simple. The goal is to turn production into a process that uses statistics, solutions, and data to solve problems instead of using the trial and error method. By first gathering data and statistics, any process can be made more cost effective, efficient, less time consuming and, simply put, all around 'smarter' than before. The amount of guesswork and product testing can be cut to a fraction, saving time and money.

As the methodology has progressed over the past 3 decades, the companies that use this improvement method are not limited to manufacturing companies or technology retailers. Six Sigma is popular today among hospitals, toy makers, clothing retailers, financial services, banks, and the military as a method to improve their performance. If there is a process involved, it can be streamlined with Six Sigma! In many ways, this concept has grown into an entire business model, and is now considered more than just an idea. Motorola has stated that it is a management system, a metric system, and a methodology. In the following paragraph, the concept is broken down more carefully.



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As a management system, it is reported to:

- Ensure improvements are sustained.
- Bring production teams together to maximize their efforts.
- Bring business strategies in line with improvement efforts.
- Accelerate results.

As a metric system, the term, sigma, is used as a scale of quality and in this case, it refers to the goal of '6 sigma' or 3.4 defects per million. So, it started as a means to reduce defects, but then the principals of it were carried over to other areas of business development.

As a methodology, it is used to keep the main focus of the company on understanding the needs of the customer, then developing the process to meet those needs by using data and statistics to minimize variation in production, and create sustainable business models. There is a breakdown of responsibility according to training level and knowledge base called the Six Sigma Hierarchy.