



Ideal Aeromsmith's employees embrace quality improvement.

Six Sigma Success



Small Businesses

The popular quality methodology brings improvement to Ideal Aeromsmith

by Praveen Gupta and Barb Schultz

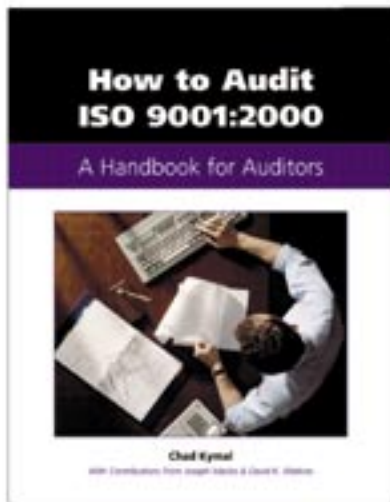
Someone once said that small businesses do everything large businesses do, only a little faster. Many large corporations have successfully implemented Six Sigma, and some have required the small companies with which they work to establish

Know & Go

- Six Sigma means a rapid improvement toward virtual perfection.
- Six Sigma can be employed by any organization, regardless of its size, to improve performance.
- Identifying opportunities for improvement, linked to corporate profitability, is a must for achieving bottom-line improvement.
- Track the sigma level to sustain and improve corporate performance.
- Implement a scorecard performance system to inspire employees.

quality systems or methodologies of their own. Small businesses should recognize that many of the tools that large corporations use can help them, too. They shouldn't let the implementation costs quoted for large corporations intimidate them, but instead negotiate prorated costs that suit their budgets.

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What is Six Sigma?

The Six Sigma methodology began as a way to measure the quality of products and services. Higher sigma levels mean better quality. Due to the grand success stories of companies that initiated Six Sigma, it's become a popular strategy for reengineering a corporation to quickly improve processes and increase profitability. The methodology changes the way companies conduct business and affects profitability in both the short and the long term.

The chart below demonstrates the levels of performance associated with various sigma values. For Ideal Aerosmith, the goal was to increase performance from three sigma to six sigma—an improvement factor of 21,000. To realize such a magnitude of improvement requires a leader's absolute and passionate involvement. Ideal's president and CEO Lonnie Rogers committed to implementing the methodology with the expectation of creating a corporate culture of dramatic improvement and a Six Sigma mindset.

Defects/million	Sigma level	In spelling, equals:
66,810	3 σ	1 misspelled word per line in an article
6,210	4 σ	1 misspelled word per column in an article
233	5 σ	1 misspelled word per long article
3.4	6 σ	1 misspelled word per large handbook

Making Six Sigma work for a small business means balancing the benefits of implementation against the investment in training.

Because limited budgets allow no margin for failure, small companies (unlike their larger brethren) can't afford the luxury of repeated Six Sigma implementations. For Ideal Aerosmith, a small manufacturer of test equipment for aviation maintenance, Six Sigma began with an audiobook summary. Once implemented, the methodology improved profits within 18 months.

Ideal was founded in 1938 and has engineering and manufacturing facilities in its East Grand Forks, Minnesota, headquarters as well as in Phoenix, Arizona. The company designs and manufactures motion simulators used to test various navigation systems and motion sensors. It also provides engineering and assembly services for avionics and commercial test equipment.

Ideal employs about 100 employees who are committed to serving customers and helping the company grow. A run of profitable years helped the company improve customer satisfaction and increase business. But when market conditions changed, the focus quickly became profitability and growth, in that order. Ideal was registered to ISO 9001, but the requirements were sporadically maintained, which led to only marginal improvement. Ideal's management team consists of six managers headed

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failure.*

by its president, Lonnie Rogers. The team has excellent personal rapport and camaraderie, which encourages an easygoing management style. In the past, this style discouraged team members from challenging each other to address weaknesses and improve performance. The team focused on accomplishing the day-to-day issues, but didn't push to solve larger problems that would improve overall operations for the long term. The management team needed a sense of accountability, and Six Sigma seemed the logical choice to provide it. Accordingly, when Rogers listened to an audiotape from former GE CEO and President Jack Welch (*Jack: Straight from the Gut*, Jack Welch and John A. Byrne, Warner Books 2001; audio version published by Time Warner Audio Books) while on a road trip, he decided to give Six Sigma a try.

Introducing Six Sigma at Ideal

The company invited a Six Sigma service provider to present a quick overview of implementation costs and consequences. Given its modest size, Ideal's management had reservations about the associated costs and some skepticism about potential benefits. The management team discussed the methodology's pros and cons, Ideal's internal resources and capabilities, management's involvement and the potential distraction from routine business. At the end of a three-hour review, Rogers committed to Six Sigma and asked his team to find ways to overcome employee resistance. His message was that Ideal must do something different to quickly achieve performance improvement, keep current customers and acquire new ones.

Early stages of implementation

Ideal's Six Sigma journey started with a performance assessment and gap analysis. The assessment consisted of interviewing managers and employees. Management reviewed performance measures, including customer complaints and feedback, for patterns and trends. They also reviewed the organizational structure to assess communication, effectiveness and synergy. Outside consultants conducted the gap analysis to ensure objectivity and thoroughness. The analysis indicated that Six Sigma improvement opportunities could have the equivalent effect of boosting Ide-

al's sales by about 10 percent. Three key areas were identified for improvement:

- Project management
- Engineering
- Inventory management

The analysis also indicated that Ideal's quality management system, which was based on ISO 9001, was ineffective due to its focus on registration. Ideal's QMS was typical of many: a nuisance of docu-


*For Ideal Aeromsmith,
the goal was to increase
performance from three
sigma to six sigma.*

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mentation and paperwork capped by terrifying visits from auditors. Management decided to revamp the company's QMS, changing its focus to process and business performance improvement instead of documentation. That led to reengineering the auditing, corrective action and management review processes. The modified QMS established a new baseline to sustain improved processes as well as Six Sigma.

After identifying opportunities for improvement, the company developed a Six Sigma implementation plan that included revising the corporate vision, mission and performance measurements. All employees received Six Sigma awareness training. A Six Sigma business scorecard

was then used to develop a corporate performance scorecard. The scorecard incorpo-

Managers were able to measure their departments and post results on an intranet bulletin board.

rated employee involvement, recognition, process performance and profitability.

Although the vice president of operations was primarily responsible for implementing the corporate scorecard, other managers took on the challenge of establishing measurements in their own departments along with one element of the corporate scorecard. For example, the manager of manufacturing was responsible for implementing measurements for operational execution company-wide. The only hitch was in developing involvement and recognition measurements for the engineering department. This proved a particular challenge, a common problem for many compa-

nies. Design engineers didn't want to be held to measurements, due to their

creative nature. They also didn't want their efforts to be tracked for time, cost and quality.

To establish performance measures for a key process, the following questions were asked:

- What's the purpose of this key process?
- What's the expected deliverable?
- How will the process owner know if his/her process has succeeded?

It took Ideal about two months to implement the Six Sigma business scorecard. Ideal organized employee recognition and recommendation processes and soon managers were able to measure their departments and post results on an intranet bulletin board that was reviewed at company meetings. The measurements were taken as needed to suit Ideal's short-term goals. After one year the company evaluated each measurement for its value and ability to indicate problems and future trends. The business scorecard was then revised to meet the company's needs.

As a result, the following benefits were observed:

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- The scorecard was a quick and easy way to start the Six Sigma process and allow employees to track their progress right away.
- Accountability, as well as checks and balances, improved.
- Pre-established measurements facilitated guidance for improvement.
- Scorecards allowed a companywide assessment of progress.

Advanced stages of implementation

Throughout Ideal's Six Sigma implementation, guidance from experienced outside help was available for improving the company's QMS. Procedures changed from empty words to useful procedures that all employees now use daily. Engineers were trained in quality function deployment and theory of inventive problem solving concepts, and managers were trained at the Green Belt-competency level.

The company added performance goals for growth and profit to its corporate mission statement. It also implemented Web-based software to reduce paperwork and efficiently implement performance measurements. This software allowed document and measurement sharing at multiple locations, which enhanced consistency in implementing the methodology and got everyone involved. ISO 9001 procedures are continually improved and updated through Ideal's internal audit and corrective action systems. The company now has a very active and valuable QMS.

The Six Sigma project team met at 7:00 am every Friday morning to address short-term conflicts with routine business activities. Team members used the tools they learned during Green Belt training to develop an action plan for improving the on-time delivery of Ideal products. The first on-time delivery improvement project spanned all departments. Ideal's baseline measurement of on-time delivery was 60 percent in January 2004. Today, it's 90 percent.

Six Sigma benefits

As a result of implementing Six Sigma and the business scorecard, Ideal experienced the following benefits:

- Improved teamwork, particularly among managers
- Involvement of all employees
- Reliable facts for decision making
- A road map and tools to determine root causes and solve problems
- Increased customer confidence
- Improved communication throughout the company
- The inclusion of the methodology in the corporate culture
- A 30-percent improvement in on-time deliveries
- A 25-percent improvement in labor efficiencies for both production and engineering

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company
now has
a very
active and
valuable
QMS.*

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Important tips for small businesses

Ideal's current challenges are to sustain the Six Sigma methodology and continually reap benefits from it. Ideal plans to do this by taking the following steps:

- Training and involving employees early in the process
- Making changes as quickly as possible
- Overcoming skepticism by providing a consistent push
- Concentrating on solving critical problems so that successes will be visible to employees and customers
- Using consultants as guides through the process
- Encouraging buy-in by training employees to own processes

- Changing the QMS as needed
- Conducting monthly performance reviews
- Changing measurements based on issues that affect Ideal's success

■ Keeping everyone aware of Six Sigma through company meetings, postings and everyday activities

Six Sigma has definitely made a difference at Ideal Aerosmith.

Conclusion

Six Sigma has definitely made a difference at Ideal Aerosmith. The methodology has encouraged teamwork and helped the company's management to focus and refine its methods in achieving efficiency. The company is truly on the right course.

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