

Adopting Six Sigma: A Quality Manager's Guide to the Statistically Based Strategy

by Vanessa R. Franco

So you've heard a lot during the last few years about Motorola's great squalling, overfed monster of a child Six Sigma, that over-glamorized, overrated and over-just-about-everything-else quality fad designed to suckle money from the budgets of well-meaning companies and deposit it into the pockets of consultants, trainers, software makers and anyone else wily enough to figure out how to make a buck from a new craze.

Or maybe you've been following the remarkable successes of the Motorola-birther, community-raised wunderkind Six Sigma, the most recent of the major advances to revolutionize the quality industry through its emphasis on objective measurements and data analysis, with the admirable goal of developing processes with no more than 3.4 defects per million opportunities.

Whatever your perspective, if you work in quality, you've no doubt at least heard of Six Sigma; the 1.5 σ shift; or the define, measure, analyze, improve, control cycle (or some variation thereof). If heard of it is all you've done, you might want to become a little more intimate with the strategy --if not because you think it might be a useful tool for making your company stronger, then at least so you'll have the information to back up your decision not to implement it. The pros and cons of Six Sigma have been frequently debated (see Quality Digest's May 2000 issue for a pair of point/counterpoint articles), so we won't go over that again here, but for those of you who are inclined to look favorably on contemporary quality movements or simply want more nuts-and-bolts information, the following is a basic guide to adopting a Six Sigma business strategy.

Sites for Sore Eyes

Whether you're just now beginning to explore Six Sigma or you need some good resources for your scheme, you should be able to find help on the Internet. Possibly the best place on the web to start --and perhaps the only site you'll need to visit --is iSixSigma's www.isixsigma.com. This bookmark-worthy site offers a solid overview of Six Sigma (with links from key terms), discussion forums and Six Sigma Q&As, job postings, a calendar, a daily quality tip, a very thorough quality dictionary, a process sigma calculator, and (in association with amazon.Com) a quality bookstore offering works by Six Sigma's staple contributors. More specific articles address the 1.5 σ process shift, Six Sigma's usefulness for small companies, case studies, key success factors, and myriad other topics. The extremely handy "tools and templates" section (www.isixsigma.com/tt) offers an extensive list of links to software providers' sites, some of which offer free demos; help and examples for mistake-proofing, process mapping, creating assorted charts and diagrams, and more; links to online statistics handbooks; and a great deal more information. You can also subscribe to the organization's free e-newsletter, "isixsigma insights," through the site.

For still more information, check out Insidequality, Quality Digest's new web portal, at www.insidequality.com. There you can visit the "ask the experts" section to review the Six Sigma questions posed to Thomas Pyzdek (Quality Digest columnist and author of the *Six Sigma Handbook*, McGraw-Hill, 2001) as well as ask all of your most burning questions on the topic; find online tools such as a sigma calculator and the Six Sigma statistical tool, which uses wizards to guide you one step at a time through real-life data analysis; discover other useful sites through links in the "resources" section; post a classified ad for a black belt in the career center; and watch for upcoming Six Sigma events on the calendar.
(cont.)

Is it worth the sacrifice?

One of the most common criticisms leveled at Six Sigma is that it's nothing new, just a repackaging of long-cherished quality techniques, but David Silverstein, managing partner at Breakthrough Management Group, disagrees.

"Six Sigma is, in fact, very special," he maintains. "There is certainly truth to the statement that few of the individual elements of Six Sigma represent new thinking. What is special about Six Sigma is that it puts all of the elements together in a comprehensive system that's structured and disciplined and includes many points of accountability. I liken it to going to classes or seminars and reading books and always saying, 'Wow, that really should make my business better,' but then ultimately being disappointed. In Six Sigma, we're attacking the organizational issues that led us to be disappointed by otherwise great programs. That means tying in the management team, the support functions (human resources, finance, communications, information technology) and all other employees."

"Unfortunately, many small to mid-sized companies feel they cannot enjoy the financial benefits enjoyed by many large firms that have implemented Six Sigma," adds Chuck Mitman, executive vice president of Prism eSolutions, a provider of ISO 9000, ISO 14000 and Six Sigma training, consulting and Web-based support services. "More work needs to be done to educate all types and sizes of businesses that Six Sigma can benefit all. It's certainly important to have a financial commitment, but equally important is having the passion and support behind such a powerful initiative. Regardless of company size, the common basic ingredients to move forward are commitment, passion and financial backing. If small firms want to move forward with Six Sigma, they can choose to pilot the initiative in portions of their business."

If you have enough information to grasp the theory behind Six Sigma but aren't sure how a company applies it in real life, perhaps a few case studies would help. Best practices llc's www.bestpracticedatabase.com provides a host of documents, usually two pages to 12 pages when printed, that focus on what the successful subject companies did right. Most of the documents are available for purchase starting at \$4.95, But several are offered as free samples. Companies profiled include General Electric, Motorola, Honeywell, Citigroup and Honda. Finally, if you're serious about your Six Sigma commitment, you may want to check out the International Society of Six Sigma professionals. According to its web site, the isspp's goal is to promote the advancement of the Six Sigma methodology and its practitioners. To this end, the organization provides conferences, symposiums, workshops and roundtable benchmarking sessions. To take full advantage of the site and receive the members-only "extraordinary sense" newsletter, join for free at www.isspp.org.

Six Steps to Six Sigma Success

Forrest W. Breyfogle III's six major steps for completing Six Sigma projects:

1. Select one or more key process output variables as primary project metrics.
2. Create a methodology to track the key process output variables of the process over time.
3. Baseline project relative to customer needs and monetary benefits.
4. Determine the key process input variable that drive the kpovs using specific steps (21-step road maps are noted in Breyfogle's books *Implementing Six Sigma*, 1999, and *Managing Six Sigma*, 2000, both John Wiley & Sons).
5. Make improvements to key process input variables that have positive impact on kpovs.
6. Establish control mechanisms to monitor KPOVd and control KPIVs.

Does Six Sigma guarantee success? Of course not. Like any other quality strategy, it's not an off-the-shelf total solution. "Six Sigma can be a great success or a dismal failure; it depends upon how you implement it," says Forrest W. Breyfogle III, president of Smarter Solutions Inc. and author of *Implementing Six Sigma: Smarter Solutions Using Statistical Methods* (John Wiley & Sons, 1999). "With proper Black Belt training, quality engineers discover how all the tools of Six Sigma can be linked together for effective project resolution. Both large and small companies can benefit greatly from these techniques."

Should you?

Perhaps your other quality programs have only produced lukewarm or dynamic but short-lived results. If you view Six Sigma as simply the next step in a string of never-ending, limited-time quality initiatives, you'll be facing an uphill battle.

"Six Sigma is most successful when it's implemented as a corporate business strategy," explains Breyfogle. "It's unfortunate that many benefits achieved from previous quality programs didn't 'stick.' Six Sigma, in contrast, includes a control phase, which is a methodology to keep process improvements from drifting back to the 'old ways.'" Additionally, he says, Six Sigma projects are linked directly to business metrics and the bottom line.

It's important to realize that Six Sigma isn't insular. As Mitman says, "It adds value to existing initiatives by ensuring steps necessary for business financial results."

Birth of a Six Sigma strategy

So where does one begin with such an all-encompassing project? "First, I'll suggest (with a little bias) that outside help is almost always necessary," says Silverstein. "That's because there's a lot of undocumented experience about what does and does not work. The first step is getting management on board --that's not a cliché, either. It's critical because a successful Six Sigma implementation takes a lot of effort, a lot of energy, and time, which means there needs to be real commitment to stick with it. The next step is to build a supporting infrastructure of policies and guidelines on everything from the selection of Black Belts to how to value Six Sigma projects. Only after the support systems are developed is a company ready to launch into training. Once training begins, it's important to monitor your program and to always keep the focus on results. Don't let Six Sigma become a training exercise."

"It's important to have a sponsor and senior leadership support," adds Sandra Muggler of Sigma Leaders, a training and consulting firm. "And, in order to ensure business financial results, it's important to recognize the financial commitment and resources necessary to make Six Sigma successful. Developing a Six Sigma roadmap includes sound infrastructure and planning. It involves completing a baseline assessment in every process to include mapping and measures that always keep the customers and their requirements as the priority. Six Sigma is also a leadership philosophy and steps need to be taken in order to engage passion and commitment from all employees of an organization."

Six Sigma care and feeding

Certainly, Six Sigma requires money, time and personnel to implement, and a company planning to adopt it must be prepared for the cost. However, "Six Sigma should be viewed as an investment that has a significant rate of return," Breyfogle says. "Companies that are not 'penny wise and pound foolish' when implementing Six Sigma can have very large benefits."

Silverstein points to consultants, including trainers and facilitators, as the biggest expense. "The other things we like to help people plan for include travel expenses for trainees, laptop computers, new software and training facilities," he adds. "Also, the salaries of Black Belts need to be factored into the equation."

On the subjects of consultants and Black Belts, Mitman agrees. "More and more companies are turning to established Six Sigma professionals to lead their Six Sigma efforts," he says. "However, even the most experienced professional still needs assistance in terms of training materials or Web-based tools in order to implement Six Sigma."

There's no getting around the expense of Six Sigma, but you'd be hard-pressed to find a quality program that wouldn't pose the same problem. If Six Sigma interests you, you'll need to realistically analyze your budget and your resources to determine the source of the initial investment.

Rethinking Six Sigma

Six Sigma is a big step to take, and only your company can decide how, when and in what way you wish to adopt it, if at all. A wealth of information is available on the Internet, including articles for and against, case studies, consultants and software galore. Ultimately, though, planning is key: Do your research, ask a lot of questions, and (as always) caveat emptor.

Watch Out!

Forrest w. Breyfogle III and David Silverstein cite Six Sigma pitfalls:

- * Not building an effective Six Sigma implementation strategy
- * Trying to implement a one-size- fits all metric within Six Sigma (Organizations should choose the best metric for each project situation.)
- * Trying to "go it alone," using their own training material when implementing Six Sigma
- * Having weak, uncommitted leadership
- * Failing to recognize the need for a supporting infrastructure
- * Not committing Black Belts 100 percent of the

Bona Fide Black Belts?

Our experts answer the question, "What do you think of the attempt to standardize Black Belt designations by means of certification courses, as American Society for Quality and International Quality Federation are doing?"

Forrest Breyfogle: There's a lot of variability between the content and quality of Black Belt training offered by providers. Documented project successes and the passing of a certification test should help employers determine whether candidates will adequately fill their Black Belt job openings.

Chuck Mitman: I believe there must be a common platform of knowledge and experience level to be in a Black Belt position, and many organizations are offering certifications to answer this. The certifications include passing a detailed exam and at least showing success on two

time

* Pursuing poorly defined projects that are too broad in scope

projects along with affidavits from sponsors. Unfortunately, there will be many Six Sigma professionals not able to participate in current certifications simply because they've led projects with different companies and cannot get an affidavit from sponsors to prove successes. Does this make them less qualified than new Black Belts who have just passed a new certification test? Absolutely not! We still have some work to do in terms of agreeing on levels of experience.

David Silverstein: I think attempts to create standards for Six Sigma will ultimately fail. That's because, unlike with other initiatives (ISO 9001, for example), companies are implementing Six Sigma in order to drive results. Accordingly, every company I've ever worked with has made changes --and continues to make changes -- to Six Sigma to best meet its own needs. It doesn't need to look the same everywhere. With that said, I would like to see some minimum standards created because it does bother me when I see people advertising things like two-week Black Belt classes. We're hard-pressed to teach Black Belts everything they need to learn in four weeks.

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