



Using Enabling Technology to Maximize Returns from Your Six Sigma Program

By Rohit Ramaswamy and Michael Cusack

Oriental Incorporated, A SAM Group Company

Fragmentation in Six Sigma Implementation—The Need for Enabling Technology

Many organizations are not seeing the best possible returns from their Six Sigma programs. According to the Aberdeen Group in 2006, “Industry is missing out on billions of dollars in potential savings, sales, and profits each year through ineffective application of Six Sigma tools and methodologies.” Aberdeen states that, while more than half of respondents in a survey involving 418 companies said they had implemented Six Sigma programs, “we found less than 16 percent of ‘Six Sigma’ companies and less than 8 percent of all respondents are holding true to a genuine Six Sigma program.”¹

Practitioners have identified lack of leadership support, narrow focus on cost reduction, lack of management oversight, and incomplete understanding of customer needs as factors that limit the effectiveness of Six Sigma programs. However, there is **one key factor** that has not received enough attention.

In our experience, the way Six Sigma programs are currently implemented in most organizations makes it nearly impossible for management to monitor the effectiveness of the program, let alone continually improve by taking advantage of the organizational learning and experience gained over time.

¹ Aberdeen Group. *The Lean Six Sigma Benchmark Report*. September 29, 2006. Cindy Jutras.

To see why this is the case, consider how a Six Sigma program is typically implemented. The majority of Six Sigma programs are run with the primary emphasis on launching and completing projects. A team is assembled to work on a project. The team goes through a training program that is delivered in a classroom using binders. The binder then resides on a bookshelf in the team member’s office and may not be readily available for reference when the team is assembled in a conference room to work on a project. While working on the project, the team develops a project charter, creates process maps, collects and analyzes data, develops presentations for tollgate reviews, and may create a storyboard for a final presentation. Typically, these are assembled on the team leader or Black Belt’s desktop and this is where they usually remain at the end of the project. As part of project management, there may be a requirement to add some project information and milestones into a centralized project tracking software. There may also be a requirement to load the storyboard into a database of completed projects. Process maps and a process management plan may be handed over to a process owner for ongoing monitoring.

Now consider a year after the project is complete. A new team is chartered to work on an extension of the project. It’s been several years since the team was trained—the team members have moved offices several times and cannot easily locate binders from their training session. The new team leader finds the storyboard for the previous project in the database, but it’s just a slide presentation—there is no way to review the data or look at the team’s work without contacting the previous team leader. That



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team leader might have moved on or deleted the contents of his or her desktop. The new team leader looks for the process map, but in the intervening year, the process has changed and the new process is being followed but has never been updated or documented. The new team therefore is effectively forced to start from the beginning. Any insights or knowledge that they could have leveraged from the previous implementation is lost.

Consider another situation. A senior executive has identified a critical customer-affecting problem that needs to be addressed through a process redesign. He vaguely remembers that there was a Six Sigma project that dealt with this issue a few years ago. He looks for details on the project but the project tracking system is not properly updated and it is not clear if the project was completed. The executive tracks down the project sponsor to get some details about the project, but the sponsor's computer crashed and the old storyboards were destroyed. There is no way for the executive to get any meaningful information about what was tried or accomplished.

For a third example, consider two project sponsors in different geographical regions responsible for similar processes. Each sponsor launches an improvement project to address a process issue, unaware that his or her counterpart is doing the same thing because the organization does not have an enterprise-level process tracking system that shows where process improvement efforts are taking place. Two independent teams work on similar projects and produce similar results that are then implemented locally. If a third region faces a similar problem, they need to start over again.

The root cause for these situations can be explained in one word: fragmentation. Fragmentation results in gaps in Six Sigma deployment, some of which were described earlier. A summary of some common gaps and their effect on Six Sigma implementation is shown in Table I. In working with companies deploying Six Sigma, we have come across dozens of situations over the years where fragmentation has resulted in inefficient implementation of Six Sigma programs or where programs lose effectiveness because they cannot take advantage of past work.

Table I. Some Common Six Sigma Deployment Gaps and Their Business Impacts

| GAP | IMPACT ON BUSINESS |
|--|---|
| Processes not documented, monitored, or measured in a systematic way after improvement | Waste of improvement efforts since project results not sustainable over time |
| Process performance measures not available at the enterprise level | Wasted effort from duplicate improvement projects launched in different parts of the organization |
| Project execution distributed across multiple software tools | Multiple data entry and rework, resulting in delays and defects |
| Details of completed projects not available at the enterprise level | Projects repeated over time, inability to build on previous solutions resulting in rework and waste |
| Training materials/resources not available just-in-time to team | Inefficient application of tools resulting in incomplete insights, delays, and rework |
| Project tracking software separated from project execution software | Errors in project tracking, incomplete or after-the-fact entry resulting in reduced ability to address critical deployment issues |



There is a great opportunity for the use of technology that enables integrated program, project, and process management to close the gaps that limit the effectiveness and efficiency of Six Sigma or Lean Six Sigma deployments.

The reason for the fragmentation in Six Sigma deployment is that 10 years ago, when Six Sigma programs were in their infancy, technology did not exist to support an integrated Six Sigma deployment at the project or program level. At the project level, teams used popular desktop applications such as those for process documentation and simple analysis, and statistical software for more sophisticated analysis. But since these programs do not allow data to be shared among them, project teams used separate applications for process documentation, project management, basic calculations, and statistical analysis, and stored the output files on local hard drives. When the time came for presentations, the teams cut and pasted information from these different applications into presentation software. At the program level, Six Sigma program offices began to track projects using desktop applications. When enterprise-wide project tracking systems became available, companies began to use them, but information in these systems is often inaccurate because they require *post facto* data entry unrelated to the actual project work.

Today, integrated enabling technology exists and it is possible to share project data, project documentation, training material, and project plans at the project and program level. However, companies have been slow to use this technology as an opportunity to significantly increase the ROI from their Six Sigma programs. This paper, intended both for new and mature Six Sigma practitioners, describes what you can expect from enabling technologies for Six Sigma and how these functions can work in concert so you can get the most out of your program.

What Is Different About Enabling Technology?

The answer comes back to our earlier observation. To move from a Six Sigma program that delivers good returns to one that maximizes them and to create a process improvement environment that transforms the business, minimizing fragmentation is critical. Organizations that want to have a process improvement initiative operating at Six Sigma should be looking

for opportunities for integration, which any enabling technology selected should provide.

At the other extreme, there has been a recent surge in the popularity of Business Process Management (BPM) systems, which are the next generation of CRM and enterprise software. These systems have the capacity for complex data management and can provide a wide range of integrated functionality in process documentation, real-time process simulation and analysis, process dashboards, and reporting. What we call enabling technology is sometimes confused with enterprise-wide BPM systems. ***It is important to emphasize that the technology we are talking about in this paper is not BPM or similar enterprise software.*** Enterprise software is intended to manage business transactions—it provides an integrated operating environment for the business. ***The technology described in this paper is intended to enable the effective monitoring of process performance, initiation of improvement activities, support for the execution of these activities, and the storage of knowledge and expertise.*** If an organization has a BPM or ERP system, the transactional data from the system may be aggregated and used as an input for process monitoring. However, the implementation of the technology in this paper does not require an organization to spend millions of dollars to collect transaction-level data. Once the enabling technology is in place, data on improvement projects is automatically collected by process improvement teams. This data automatically allows project tracking to take place. Process maps are created using popular desktop applications and are integrated into the system. Process performance data to support process management can be easily collected by incorporating data collection templates that are built into the system. The technology suggested herein does not help an organization to manage its everyday business—it uses the data from the everyday business to identify where improvements are necessary and effectively manage these improvements efforts. In this respect, the enabling technology that we have described can be called a ***Process Improvement Management System***—it allows an organization to get better at what it is doing by providing the business insights necessary to make the right improvement decisions.



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What Should Enabling Technology Do?

Enabling technology should allow all the key activities of your Six Sigma or other process improvement initiative, such as executing projects, managing programs, monitoring processes, and reporting progress, to be performed through a single integrated interface. In addition, this interface should be a single source for project data, process documentation, training material, best practices, and executive reports.

As an executive sponsor responsible for enterprise-wide Six Sigma deployment, you need access to the progress and ROI of the entire program and the ability to make comparisons over time. As a deployment champion, you need to track project progress monthly or quarterly in your business unit. As a project champion, you need to be able to review the progress of your project and identify activities where your support might be needed. As a team leader, Belt, or project team member, you need to access and manipulate data relevant to the project, use the tools associated with your methodology (such as SIPOC, fishbone diagram, FMEA, QFD, or statistical tools), document what you have accomplished, and access training material, external references, and examples of similar completed projects. As a process owner, you need to monitor your process performance, make real-time adjustments to process operations and documentation as needed, and identify more complex improvement opportunities that can be addressed by Six Sigma projects. **An ideal enabling technology is a single system that allows you to do all of these.**

Specifically, a technology that maximizes the effectiveness and efficiency of a Six Sigma or process improvement initiative at the project and enterprise level should support:

- Process documentation, monitoring, and analysis
- Real-time project execution support
- Project tracking
- Status reporting
- Knowledge management

An enabling technology is successful if it allows you to perform

the following activities from a single, integrated source:

1. Map processes using a standard definition on a single platform.
2. Store data on the overall process performance and performance of process steps.
3. Share this data across a range of embedded and stand-alone Six Sigma tools.
4. Import this data into statistical software (such as Minitab).
5. Model and test alternate process scenarios.
6. Manage (timelines, activities, etc.) projects across the Six Sigma methodology steps.
7. Obtain summary reports on projects, completions, savings, etc.
8. Create an expertise database of Black Belts, Master Black Belts, specialists, etc.
9. Create customized or use standardized templates for new projects.
10. Create process management charts, tables, and reports that can be customized and automated.
11. Create and store storyboards that integrate multimedia platforms with data.
12. Provide web access and host discussion forums, online collaboration, blogs, etc.

Conclusion

Software solutions are emerging that will enable businesses to manage process improvement programs in an increasingly sustainable and successful manner and address the fragmentation issues that inhibit the success of current programs.

Even now, low cost, easy-to-use, fully integrated software solutions are facilitating successful process improvement initiatives. There are process improvement management system software packages available today that meet many, if not all of the functions we have described in this white paper. At Oriel, we help organizations assess, select, and implement an enabling technology that is the best match between current capabilities and future goals. For more details on the topics covered here or for a discussion on the technology that might be right for you, please contact us. We look forward to hearing from you.



Appendix

Functional Requirements

Here are some key functional requirements to think about when considering an integrated software solution for managing a Six Sigma or process improvement initiative:

- At the highest level, the solution should include data aggregation, reporting and analysis, and integrated process improvement tools.
- Project managers should have the ability to create methodology road maps to ensure standards, consistency, and repeatability. The road maps should integrate training content.
- The ability to conduct event simulations should be built into the application. Users should be able to set performance parameters for each step of the process using a simple interface.
- Users should be able to manage project timelines and activities across the key activities associated with various Six Sigma methodologies.
- Coaching tools should be included in the application to allow less experienced users such as Green Belts to interactively “step” through a Six Sigma or Lean project.
- The tool should use dynamic linking between training materials and the practical application of Six Sigma in the workplace. Users should be given a clearly defined road map to follow.
- Look for a tool that automatically updates analytics and provides functions to closely track financial targets, project dates, and project health updates. Business rules should send out project advisories to designated recipients.
- Rather than creating customized mapping applications as is the case with some Six Sigma tools, look at software solutions that embed Six Sigma and Lean tools directly onto a process mapping platform.
- Consider an application that can allow quick analysis directly from the process maps.
- Project tracking functionality should be built right into the solution. The application should support rollup views of all projects in progress, showing current phase, type of project, percentage complete, and relevant dates.
- Drill-down capabilities should graphically show each project’s timelines, gates, documentation, resource loading, financial situation, and overall status.
- Users should be able to quickly obtain summary reports on projects and estimated savings via the Internet.
- A knowledge base should enable users to find and aggregate data across multiple projects. This will be particularly useful in quickly identifying project synergies using a powerful search and matching mechanism.
- The application should enable users to create a database of Black Belts, Master Black Belts, specialists, and other resources based on historical project data.
- The system should allow users to create customized road maps for existing or new tools and integrate these with the database.
- The application must be able to create process management charts, tables, and reports that can be customized and automated.
- The system should provide users with the capability to create and store storyboards that are designed to integrate multimedia functionality with data.
- The application should allow interactive discussion forums, blogs, chat, and other real-time communications between project participants.
- The system should support project selection by being able to prioritize project improvement ideas by configurable criteria (such as benefits and ease of implementation).
- Users should be able to configure workflow templates and tool pull-down options, enabling simple aggregation of project data, while best practice templates/workflow modules can be designed to improve problem-solving skills, project organization, and self-sufficiency.
- Integrated project management tools should provide self-updating timeline reporting, workflow alerts to communicate action,



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- and automatically generated reports regarding project status, budget, savings, validity, problems, and proposed solutions.
- Look for tollgate report features that integrate presentation management features with project road maps.
 - The best software providers should have devoted significant resources to the development of easy-to-use and ergonomically designed user interfaces.
 - It is important that the tool you chose has a particularly strong search engine and uses powerful algorithms to search for similarities between existing projects and the task at hand.
 - The software vendor should offer either an in-house hosted version or an Application Service Provider (ASP) hosted version of the system.
 - Some software solutions offer more robust foreign language support than others.
 - Discover whether automatic storyboarding is provided with the application, including the automatic generation of presentation slides for an executive tollgate review.

In addition to publishing white papers and guidebooks for instructors and students to use in Lean, Six Sigma, and process excellence training, Oriel Incorporated offers consulting and training services to help organizations develop, implement, and sustain the methodologies needed to improve organizational performance. Expertise includes leadership development, change management, teambuilding, Six Sigma, process and product design, Lean, process improvement, and problem solving. Oriel publishes several well-known off-the-shelf books including *The Team[®] Handbook Third Edition*, which has sold more than one million copies.

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