

Six Sigma[®] at Motorola –

At the place it was born, Six Sigma has evolved into a fully integrated management system to execute business strategy.

By Tom McCarty – Motorola, Inc.

Introduction from Tom McCarty

As the Director of Six Sigma Services for Motorola University, it is my responsibility to extend the benefits of Motorola's Six Sigma implementation within the company and across the corporate value chain. I provide coaching for the governance and leadership aspects of Six Sigma within Motorola, and I engage our customers and suppliers in the adoption of Six Sigma within their organizations.

In this article, I provide an overview of the Six Sigma methodology and its evolution at Motorola. In addition, I share some examples and insights into how that methodology can help you lower costs, improve cycle time, increase client satisfaction and secure new, profitable business.

History

Motorola, Inc. invented Six Sigma, and we have learned a great deal about it over the last 18 years. During that time, Six Sigma has evolved from its roots as a measure of quality to an overall business improvement methodology and to what it is today at Motorola – a fully integrated management system.

In 1986, Bill Smith, a senior engineer and scientist within Motorola's Communications Division, introduced the concept of Six Sigma in response to increasing complaints from the field sales force about warranty claims. It was a new method for standardizing the way defects are counted, with Six Sigma being near perfection.

Smith crafted the original analysis and tools that were the beginnings of Motorola's Six Sigma methodology. He took his ideas to CEO Bob Galvin, who was struck by Smith's passion and came to recognize the approach as key to addressing quality concerns. Six Sigma became central to Motorola's strategy of delivering products that met the high quality standards our customers deserved.

Following a common Six Sigma methodology, Motorola began its journey of documenting key processes, aligning these processes to critical customer requirements and installing measurement and analysis systems to continuously improve the process.

From Quality to Business Improvement

While Six Sigma was originally created as a continuous quality improvement technique, today it is significantly different than the total quality management (TQM) approach of the 1980s. Table 1 shows the key differences between Six Sigma and TQM.

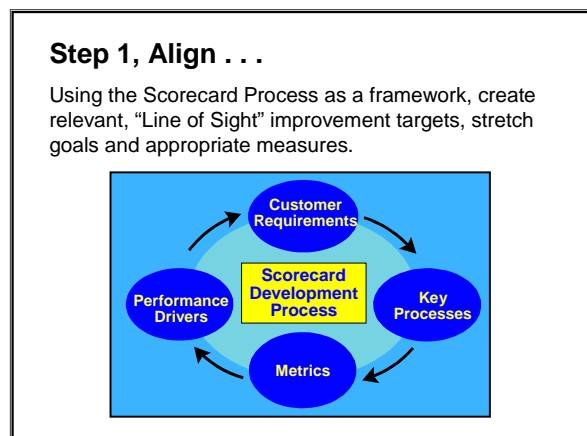
Table 1.

Contrasting Six Sigma and Total Quality Management	
Six Sigma	Total Quality Management
Executive ownership	Self-directed work teams
Business strategy execution system	Quality initiative
Truly cross functional	Largely within a single function
Focused training with verifiable return on investment	Mass training with no quantified return on investment
Business results oriented	Quality oriented

From our extensive experience, Motorola has learned Six Sigma goes far beyond counting defects in a process or product. The next generation Six Sigma is an overarching high performance system that executes business strategy. Experience leads us to the insight that Six Sigma demands the following four steps:

1. Align executives to the right objectives and targets.
2. Mobilize improvement teams.
3. Accelerate results.
4. Govern sustained improvement.

Step 1 – Align:

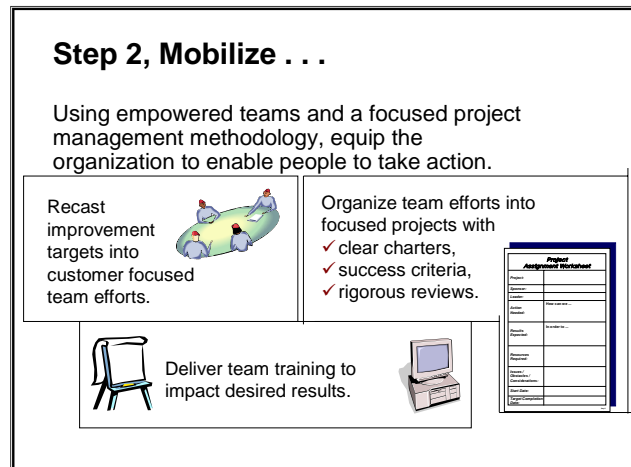


The new Six Sigma starts with senior executives creating a Balanced Scorecard of strategic goals, metrics and initiatives to identify the improvement points that will have the most effect on the organization's bottom line.

Critical scorecard metrics drive stretch goals for the various business processes owned and supervised by senior executives. Process owners champion the creation of high impact improvement projects to realize the strategic goals.

In the second generation Six Sigma at Motorola, processes are not limited to the classic product and service domains. They can involve market share improvements, better cash flow and improved human resource processes. Executives select and supervise a handful of improvement projects by releasing constraints in business processes that cause critical business gaps.

Step 2 – Mobilize:



Customer focused project teams are formed and empowered to take action.

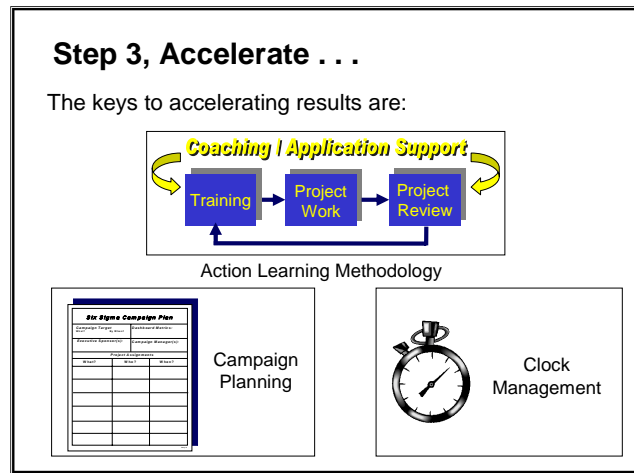
Executive process owners empower Black Belts to lead well-defined improvement projects. Six Sigma business improvement teams use:

- A systematic problem solving method to frame the sequence of project tasks.
- Analytical techniques to drive fact based decision-making.
- Interventions to sustain business impact.

The step-by-step problem-solving framework and work breakdown structure can be remembered easily by using the acronym DMAIC:

- First, the business problem is **D**efined to determine what needs to improve.
- The team then **M**easures the current state against the desired state.
- The team **A**nalyzes the root causes of the business gap.
- The team then brainstorms, selects and implements the best **I**mprovement solutions.
- Last, the team **C**ontrols the long-term sustainability of the improvements by establishing monitoring mechanisms, accountabilities and work tools.

Step 3 – Accelerate



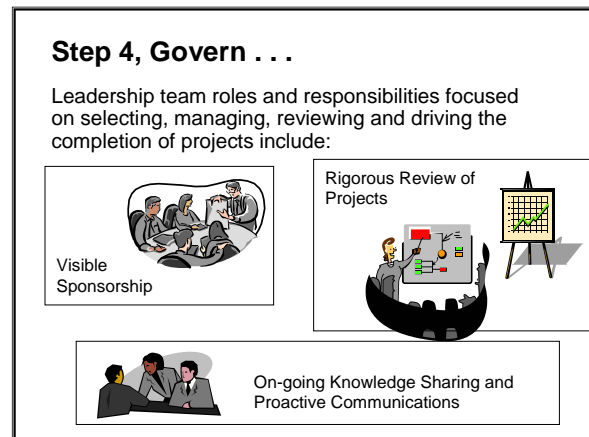
Six Sigma business improvement teams use an action-learning framework to build their capability and execute the project. Executives select appropriate BB and Green Belt (GB) team members based on functional expertise and provide appropriate resources.

Our action learning framework methodology combines structured education with real-time project work and coaching. This approach quickly bridges candidates from learning to doing. BB and GB candidates take an assigned business improvement project to their training. Throughout the training and project work, they learn problem solving, project management, process optimization and statistical skills while applying them to the business problem at hand.

Outside the classroom, the candidates and project teams receive expert support from coaches on a just-in-time basis. Ongoing reviews with the project Champions also ensure the projects are progressing according to their timeline and milestones.

Motorola recognizes change is best accomplished in sprints rather than marathons; so aggressive clock management is key to driving projects toward the desired results in time to make a difference. A campaign management approach helps integrate the various project team efforts so the cumulative impact on the organization is, in fact, accelerated.

Step 4 – Govern



Finally, the second generation Motorola Six Sigma methodology includes a process for governance.

Leaders actively and visibly sponsor the key improvement projects required to execute the strategy. They rigorously review projects in the context of process metrics and business outcome goals.

Executive process owners look at overall organizational dashboards, their own process metrics and the status of improvement projects chartered to make improvements and ensure the overall business system is functioning as desired.

The final governance step is for leaders to actively share best practices and knowledge about improvements with other parts of the organization that can benefit.

From Business Improvement to an Integrated Management System for Executing Business Strategy

At Motorola today, Six Sigma has evolved to a fully integrated management system. That management system integrates strategic objective and measurement systems development, project prioritization and governance, and a performance management system to drive a more focused execution of the overall business strategy. At Motorola, it is the way work gets done.

The essential premise of the Six Sigma Management System is that there is a leadership team in place whose members are willing and capable of engaging in a disciplined, team based process of continuously monitoring real time organizational performance metrics and then taking action in the form of project reviews. The team engages in frequent dialogue regarding performance related to customer and market requirements as well as performance related to critical improvement projects. As a result of the dialogue that is generated, an organization-wide dialogue is created that drives top to bottom focus on daily execution.

To facilitate an effective Six Sigma management system, these leadership teams utilize a specific set of tools including an Organizational Scorecard, an Operational Dashboard, a project monitoring process, a governance team structure and a governance meeting process.

Many Six Sigma efforts fail to achieve their full potential. Six Sigma implementation at the problem-solving or strategic improvement levels are a terrific start but limit the benefits to specific issues or tightly bounded, often fragmented, strategic opportunities. When used as a fully integrated management system, Six Sigma drives a real, measurable business transformation aligned to a winning corporate strategy. Six Sigma becomes a company-wide way of doing business across all functions and groups and ensures breakthrough improvements and results that are sustainable over time.

Getting Started with Six Sigma

With that overview as a backdrop, I suggest some actions that you can take to create some early wins to leverage the power of six sigma within you firm.

Coaching Tip One: Get serious about 2 or 3 key metrics

Measuring and monitoring business process performance through a set of key measurements is at the heart of the Six Sigma Governance process. Pick 2 or 3 process metrics that could determine success or failure of your firm, (or at least competitive advantage) and establish a baseline and data collection process. Watch it for 3 months and decide the true cost of that performance. A special note: billable hours, total revenue and margin are poor process metrics. They act as after the fact output metrics but don't tell you much about the effectiveness or efficiency of the process that generates the billings, revenue or margin. Here are some metrics you might want to consider:

- **Cycle time**

Speed is often a good surrogate for efficiency. We know that when work is not moving through a process, it is sitting somewhere. That creates opportunities for error. Cases get lost, deadlines get missed, and customers get tired of waiting. Create a new sense of urgency in your firm and with your customers by measuring the speed of some critical processes and get beyond how long it takes to return a phone call. How about turning in all billable hours at the end of every business day, or reviewing every case on a one day turnaround, or getting invoices out to customers in the same week in which the work occurs.

- **First pass yield**

Pick some critical work products and begin measuring how often a product gets through the entire process without the need for rehandling and without any errors. You will be amazed at how low your first time yield is. Try looking at how often customer inquiries are answered on the first call, or work submitted to clients doesn't come back for changes.

Coaching Tip Two: Launch a serious improvement project

Pick a process improvement target that would be meaningful to your clients and put 7 of your best people on the team with a high potential employee as the leader. Provide the 7-team

members with Six Sigma Green Belt training and the team leader with Black Belt training. Give them 5 months to solve the problem, review their work two times a month, provide coaching when they need it and demand results. You will be amazed what a well trained, well coached team can do when leaders make up their mind that its time to change.

Coaching Tip Three: Create a senior leadership team that acts like a team. Install a governance process in which your senior leaders meet at least once a month to seriously consider the implications of the trend data that is being collected and to make common decisions about activities that will improve the trends. Make them step away from their functional areas of expertise and consider the good of the entire firm for one day a month. The going will seem arduous at first but you will be amazed at the changes that you can drive in 6 months.

In summary, Six Sigma offers businesses like yours an opportunity to shake off complacency and continue to compete in an increasingly demanding marketplace. With a successfully implemented Six Sigma initiative, you can expect to improve service and product excellence and realize significant cost savings. Many firms across all industries will be adopting Six Sigma and they will set a new benchmark that others will have trouble achieving. Why couldn't one of these firms be yours?

For more information: <http://www.motorola.com/motorolauniversity>

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