

Six Sigma Can Help Project Managers Improve Results

By Harry Rever

If it was easy to improve business results, results would always improve. Obviously, this is not the case. Business leaders understand the power and usefulness of managing the improvement of key business results through projects and process improvement teams. That is why business leaders use project managers to address the toughest process improvement issues they face.

It only makes sense, then, for project managers to be trained in how to improve processes through improving key performance metrics. And there is no better approach to process improvement than the application of Six Sigma tools and methods. It is a discipline that focuses on these very issues—process improvement driven by key measure improvement. Moreover, the disciplines of project management (PM) and Six Sigma are not only similar, they are complementary.

The similarities between project management and Six Sigma include:

- Use of projects as the avenue for improvement.
- Utilization of established project management techniques to effectively manage a project and project teams.
- Necessity of actively involved and proactive project sponsors or champions to help ensure project success.
- Life cycle and phases.
- Need for a well-trained project facilitator to lead the effort.

Six Sigma adds additional dimensions to project management:

- Powerful set of process improvement steps and tools.
- Statistical and process thinking, to understand and improve results.
- Understanding of variation, to reduce knee-jerk reactions.
- Quantitative analysis, to base decisions on facts and data.

Key metrics, if established correctly, reflect the capability of underlying processes. To improve any key metric, then, it only makes sense to improve the underlying process. As the quality guru Edwards Deming once said, "If you can't describe what you are doing as a process, you don't know what you're doing." A strategy that focuses on the key metrics that describe the process is an effective way to improve results. And a

fact-based and logical approach addressing the root causes of problems must be applied by project teams.

DMAIC—Road Map to Improving Results

The Six Sigma road map to improving business results is DMAIC (define, measure, analyze, improve, and control), a proven set of steps that can be applied to any process in any industry. The five DMAIC steps are easy to understand, make total sense, and match up well with the established project phases, as depicted in the outside circle in figure 1.

Figure 2 depicts the DMAIC steps as an iterative process with the root-cause formula at the center of the DMAIC wheel.

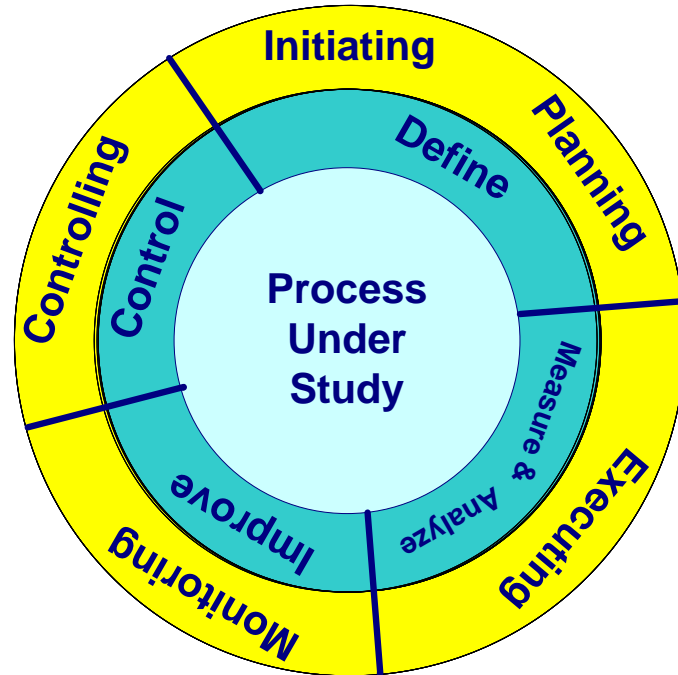


Figure 2 PM Phases and DMAIC Steps

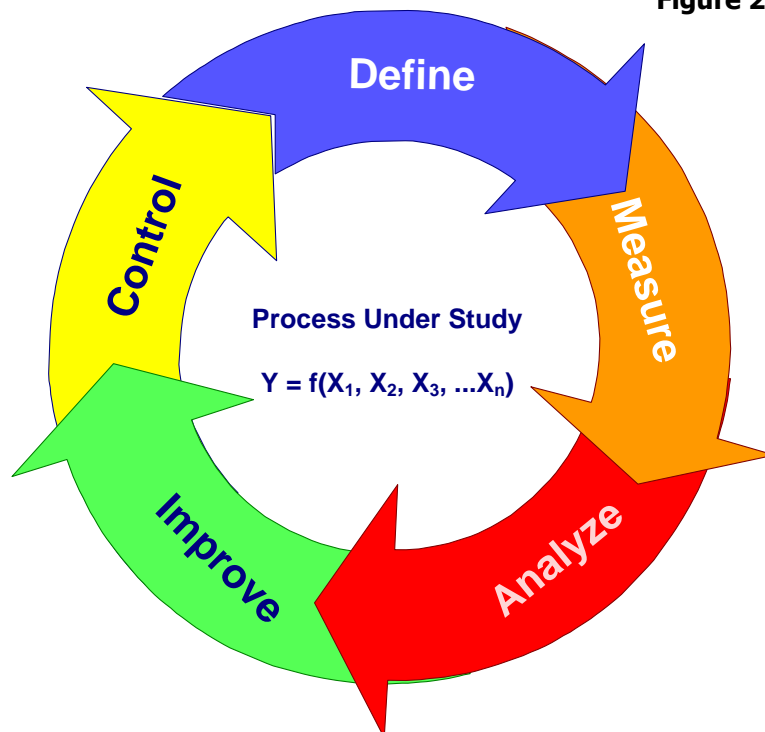


Figure 1 DMAIC Iterative Steps

Step One—Define

As does any project, the Six Sigma define step requires extensive planning and scoping to ensure that the project is set up correctly. The project manager develops the project charter, ensures proper sponsorship for the project, and acquires appropriate cross-functional team members. Timelines are established, proper training on the DMAIC steps is given to all stakeholders, and ground rules

are developed. Additionally, key measures are agreed upon that link the project to the business unit's strategy. The key measures must show sustained improvement to ensure project success. High-level process maps are also developed by the team to help with scoping the project and consistent process understanding.

Step Two—Measure

How can sound decisions be made without good data? Why would anyone believe the team's recommendation without solid, accurate, and supportive data? The measure step addresses typical measurement-related and data-related issues such as:

- Specific data that is needed but is not available.
- Available data that is not accurate or not believable.
- Current measurements that are not helpful.
- Available data that is too much or too little.

Many teams skip this important step, a classic mistake with lasting consequences. In the measure step, the team develops a data-collection plan to ensure the accuracy of the measurement system. Process decisions must be based on sound and accurate data; not on guesses, estimates, or anecdotal comparisons. Data is stratified in various ways (by product, region, customer, shift, and so on) to help scope the project. An example of such data is shown in figure 3, a box plot stratifying data by region. Charts are also made during the measure stage to assist the team in better understanding the process and the important issues.

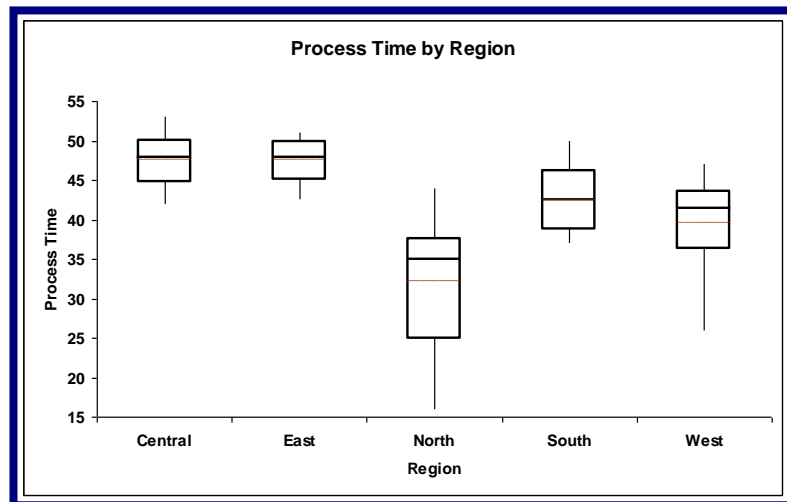


Figure 3 Box Plot

Step Three— Analyze

Once the team has gathered the data and made the charts, they begin to look for clues to the improvement path through the key metrics. Various statistical tools can be used to stratify the data to reveal the important information and logical next steps. Process analysis can uncover

bottlenecks and constraints, while root-cause analysis can hone in on the key measure drivers. Figure 4 shows a scatter plot, a tool that can help the team visualize relationships between variables or measures.

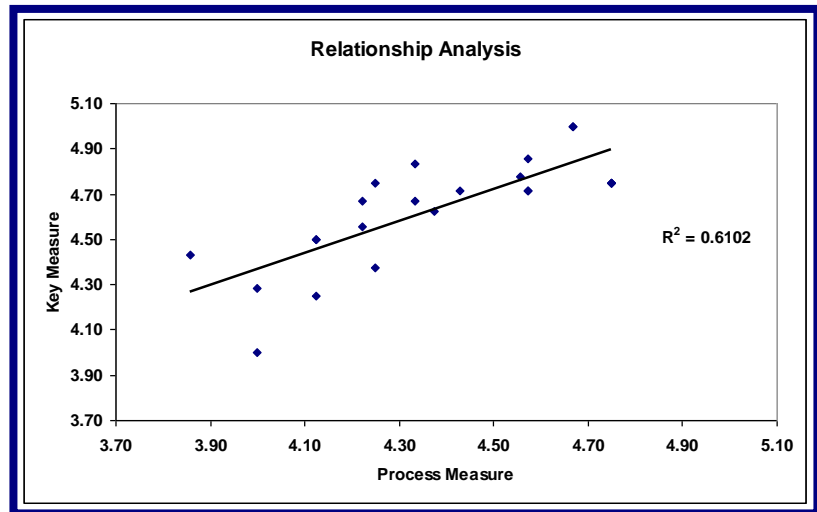


Figure 4 Scatter Plot

Note that the team has not made any changes or recommendations to the process yet. Another common mistake teams often make is to jump right to the improve step, trying to solve the problem without truly understanding its underlying processes and root causes. Going through the DMAIC steps in order is vital to project success and to seeing quantitatively if the key measure under study is improving. Utilizing the DMAIC steps correctly actually speeds up a project because the team now has a path to follow.

Step Four—Improve

The improve step verifies and validates recommendations and demonstrates, with data and charts, sustained improvement before final process changes are implemented. A process can be extremely complicated. Without proper testing and validation, there is no way to ensure that the final recommendation actually does make a sustained difference. Figure 5 shows evidence of breakthrough and sustained improvement in a key metric, the goal of every Six Sigma project.

Step Five—Control

Once improvements have been verified, the new process must be implemented and then handed off to the ultimate process owners. As in the closure phase of project management, in the DMAIC control step, the team closes down the project and hands off the final recommendations to those closest to the process. This step requires training the recipient organization on the data collection plan and how to maintain and

interpret the key metric charts. A reaction and audit plan must be put in place to ensure that the improvements are maintained over the long term and that the results do not drift back to previous levels.

The essence of control is to maintain long-term gains. Without proper and effective efforts made at this step, organizations can easily work on the same problem over and over again because of the tendency for things to go back to the way they were before project initiation.

Conclusion

Improving business results is important in every organization. Project managers are often the change agents charged with leading the improvement efforts. Understanding and incorporating the Six Sigma DMAIC steps into every project can help project managers not only be more effective but can lead to breakthrough results. Attaining a Six Sigma Green Belt certification is the best approach for project managers who want to demonstrate that they are ready to accept the challenge of improving their organization's business results.

About the Author

Harry Rever (CSSBB, CQM, CQC, PMP) is Six Sigma director for International Institute for Learning. Harry is a dynamic presenter and practitioner of Six Sigma and Project Management. He has used his innate ability and over seventeen years of real-world experience to train thousands of employees in Six Sigma, process improvement, and project management disciplines. He frequently presents at conferences and seminars and is a senior member of ASQ and a member of PMI.