

PROCESS MASTERY WITH LEAN SIX SIGMA 2nd EDITION

A Practitioner's Guide to the Utilisation of Modern Day
Lean Six Sigma Methodology

Written by
George Lee Sye

With additional tips and commentary by
Harry Sinko



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Web: www.soarent.com.au
Email: home@soarent.com.au

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THE DMAIC ROADMAP IN DETAIL

To successfully employ the DMAIC approach, a Black Belt must be familiar with more than just the tools of process improvement. They must be familiar with the steps to take within each of the ‘phases’ of the Lean Six Sigma process improvement methodology.

Before discussing a ‘roadmap’, let me discuss the philosophy behind our approach to Lean Six Sigma. This philosophy is based on (a) my experience and observations of projects that have generated returns totalling 100s of millions of dollars and (b) the belief that the only constant in process improvement work is the start and end point – there are many ways to get to the desired outcome.

- **There is no one-way to do Lean or Six Sigma.** There are many effective ways to get from the start point to the desired end point. Much like a traveller finding her way to a new destination, the Black Belt is able to design his or her path through the steps of DMAIC according to their particular circumstances.
- **There are some elements that must be completed for every project.** These include (a) define the problem up front, (b) collect reliable data with relevant stratification variables, (c) find the source of most variation, (d) find and validate root causes of that variation, (e) generate and select solutions that treat root causes and fit criteria important to the customer and the business, (f) implement solutions using project management skills, (g) standardise the process and control its performance, and finally, (h) celebrate at the end of the project.
- **Whilst appearing linear, any ‘roadmap’ is iterative in that it is often necessary to go back at some point or move forward at other points in the process.** There will be occasions when easy wins or ‘just do it’ solutions are implemented while the analysis phase continues, in effect working in two parts of the DMAIC process at the one time. The only constant across Lean Six Sigma projects is the start and end point. The project starts with the identification of a performance gap, and the final destination is the closing of that gap. There is no one path between the two points.
- **Black Belts are given an extensive toolbox, but not every tool needs to be used.** Much like a motor mechanic working on different cars, they draw tools from that toolbox when they are needed for a specific purpose. Each tool helps generate answers to specific questions, and when the questions arise, that is the time for the tool or tools to be used.
- **Special cause variation must be eliminated before working on common cause variation.**

So when using this roadmap, or any other, I would suggest keeping in mind that it is a starting point on your journey to mastering Lean Six Sigma. Over time you will find yourself creating your own general guidelines. Be cautious to ensure that any roadmap does not become prescriptive and kills the innovation and adaptability of your Lean Six Sigma work.

20 STEPS TO SUSTAINABLE PROCESS IMPROVEMENT

The 20-step process shown in the roadmap on the following page has proven successful in guiding many Black Belts and Green Belts in the effective employment of the DMAIC approach. It may prove useful in helping you start your journey to mastery of Lean Six Sigma through improvement project work.

Define Phase

1. Identify the improvement opportunity
2. Allocate the project to a team leader
3. Develop the project charter (an activity that involves the participation of team leader, process owner and project champion)
4. Start up the project team
5. Document the key elements of the process being worked on

Measure Phase

6. Plan the collection of data
7. Validate the measurement system used to collect data
8. Collect the data
9. Measure baseline performance (process capability or process efficiency)

Analyse Phase

10. Evaluate process stability
11. Eliminate special cause variation if it exists OR go straight on to identifying the source of variation or waste
12. Analyse cause & effect relationships where you need to

Improve Phase

13. Generate and select solutions
14. Mitigate potential errors or consequences
15. Develop the implementation plan
16. Implement solutions

Control Phase

17. Standardise processes
18. Develop monitoring and response plans
19. Monitor performance
20. Respond to deviations from plan

Tollgates / Stakeholder Check-ins

While each company might develop its own approach to these components, tollgates and stakeholder check-ins are vital to (a) the learning process and (b) engaging people impacted by any change resulting from the project work.

These steps are shown in diagrammatic form on the following page.

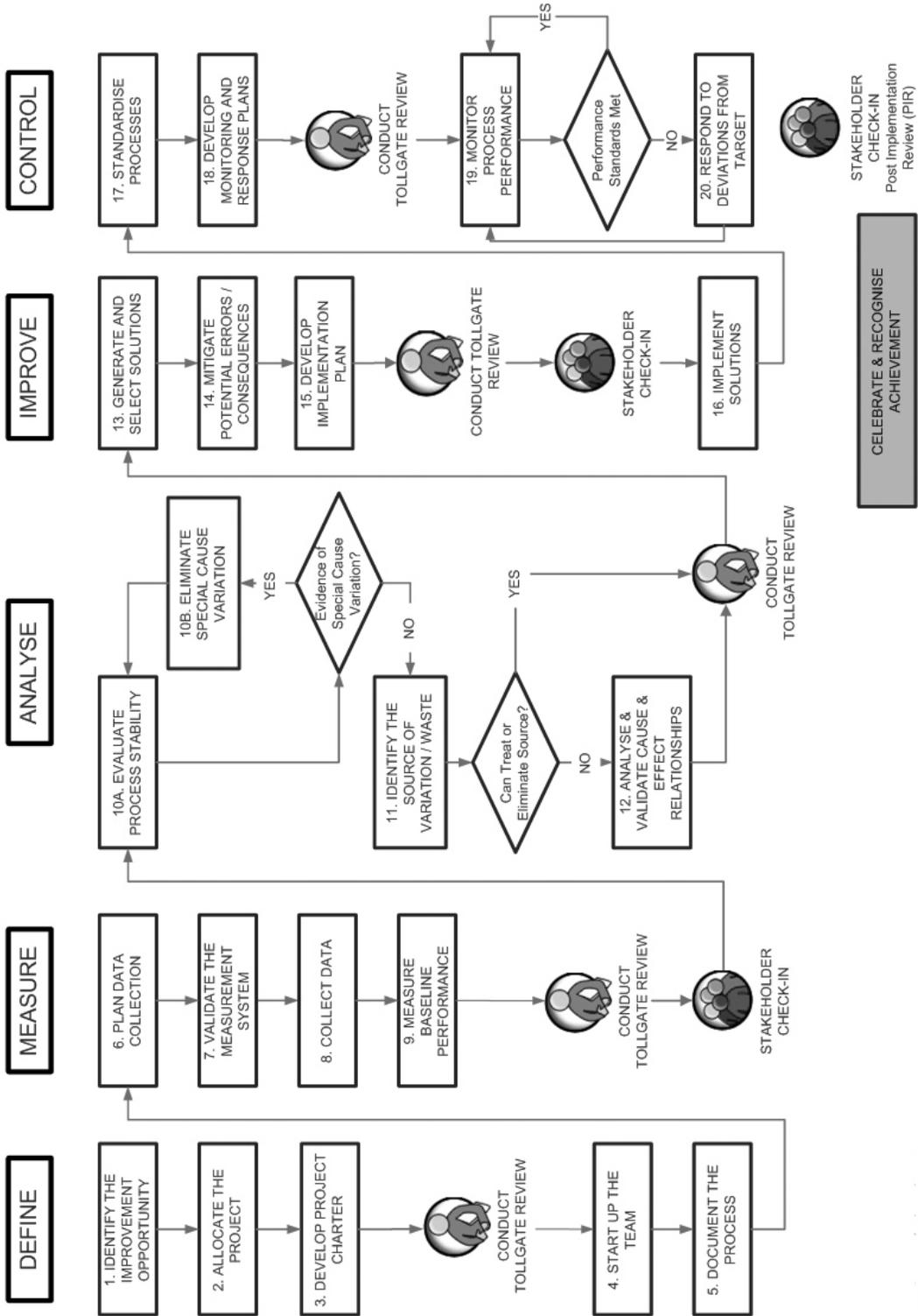


Figure 13: DMAIC Roadmap - 20 Steps to Success

DMAIC AND TRADITIONAL PROJECT MANAGEMENT

I'm often asked about the relationship between Six Sigma and traditional Project Management. I like to answer the question in this way.

Traditional Project Management

Traditional project management (such as that taught in technical colleges) is a framework for facilitating the planning, scheduling and controlling of all activities necessary for achieving specified project objectives.

DMAIC as a Project Management Process

Interestingly enough, the DMAIC sequence can be defined in a similar way, though its application was intended to be in the context of process improvement. With the need for certain principles and tools to be applied in a defined sequence to realise genuine and value-adding improvements, DMAIC has proven to be both efficient and effective in the right context as it is easily repeated and provides the right guidance to the project leader.

2 Projects in One

What's interesting is there are really two projects within the DMAIC sequence. The first project, for which DMAIC is extremely effective, is the *solution identification project*. The second project is the *solution implementation project*.

Traditional project management gets a guernsey within the DMAIC model as a framework and set of tools for managing the implementation of solutions *after* they've been chosen by the team - the second project in this case. The traditional framework and tools are used extensively in steps 15 and 16 as defined in our 20 step roadmap shown on previous pages.

Note:

1. More detail on project management is provided in the Six Sigma Project Improve Phase chapter of this book.
2. Read the next section, particularly the notes on 'project phases'.

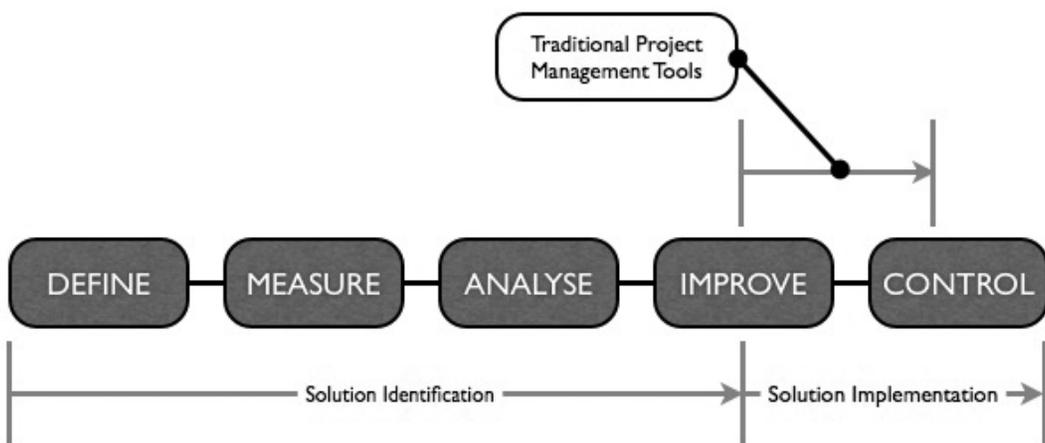


Figure 14: DMAIC Project Management & Traditional Project Management