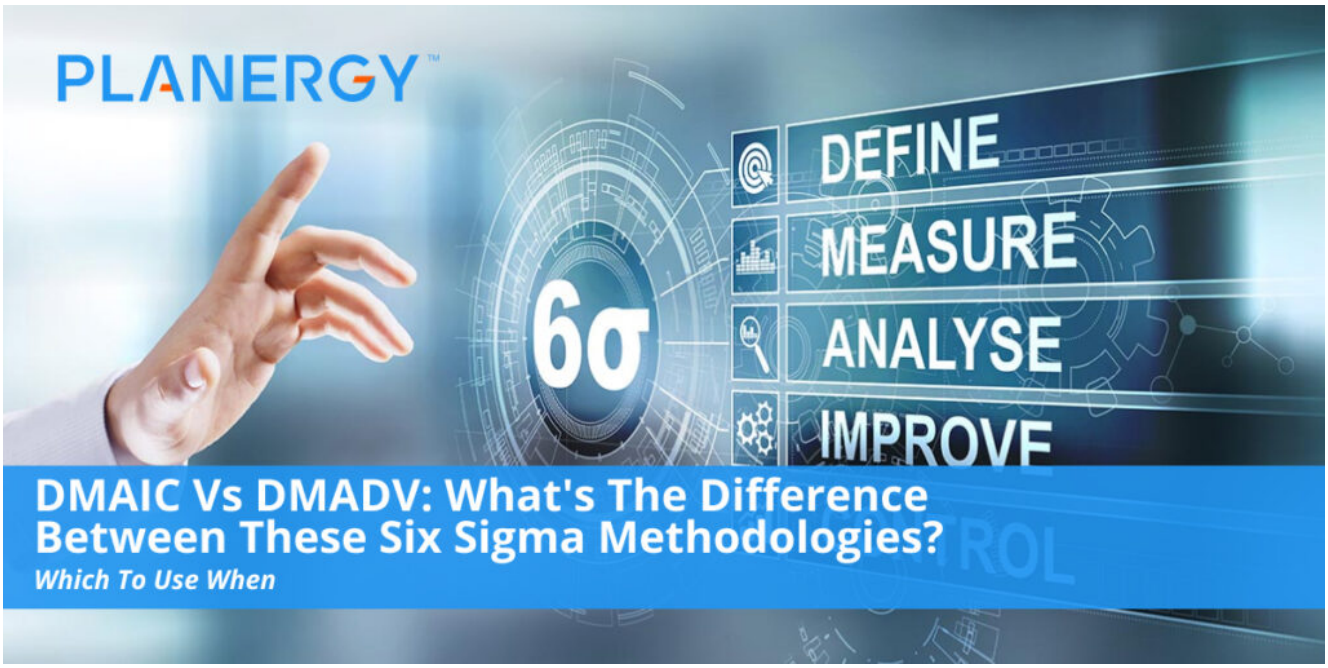
DMAIC Vs DMADV: What's The Difference Between These Six Sigma Methodologies?



Six Sigma also referred to as Lean Six Sigma, is a continuous improvement methodology.

Businesses and other organizations use it to eliminate waste and cut down on variations from standard operating practices throughout the design, service, and manufacturing processes.

This approach aims to reduce non-value activities and cycle times while taking steps to improve value for customers. With Six Sigma, companies improve product quality by identifying and reducing variability.

It's full of acronyms, so let's take a look at some of the most common you'll see. Adopting LSS can save you money and boost customer retention (for additional cost savings.)

LSS most commonly uses one of two project methods. DMAIC – Define, Measure, Analyze, Improve and Control is used to improve existing processes.

A modified version, known as Design for Six Sigma, or DFSS. The most widely

used process in DFSS is DMADV – Define, Measure, Analyze, Design, and Verify.

Though the first three letters stand for the same thing in both methods, the two are not the same thing and cannot be used interchangeably. Even though they are different, they both aim to make your processes, products, and services more effective and efficient.

Whether you're just getting started with six sigma training, a green belt, black belt, or master black belt, you'll benefit from being familiar with both of these approaches to build and improve upon business processes.

> *Use DMAIC when dealing with an existing process, product, or design. Turn to DMADV when designing something new.*

DMAIC Methodology: Define, Measure, Analyze, Improve, Control

Any project managed with this approach uses these five phases with the existing product or current process in mind:

- **Define:** Define the issue at hand, the element that needs improvement, the customers, and the process that is associated with the issue.
- **Measure:** Collect data from the process for baseline purposes.
- **Analyze:** Analyze the data to determine the root cause of the problem.
- **Improve:** Take time to develop, test, and implement improvement solutions.
- **Control:** Once you've found something that works for process improvement, implement controls to keep those improvements in place over the long term.

DMADV: Define, Measure, Analyze, Design, Verify

Projects using this approach are focused on creating a new product, service, or process. The phases are:

- **Define:** Define the process and develop the goals.
- **Measure:** Measure and identify any characteristics that are critical to quality. Include any risk and production capabilities.
- **Analyze:** Analyze the data to ensure you choose the best possible design with the information available.
- **Design:** Design and then test the product, service, or process.
- **Verify:** Verify that the design output meets the requirements. Make sure the designed product/service/process performs well under simulated (or actual) conditions.

In the first phase, goals around the purpose of the project are discovered. At this point, it's crucial to have measurable (and realistic) goals based on what is most important to the company and its stakeholders.

Once the goals are set, the project scope must be clearly defined. Then, a strategy must be developed that aligns with each of the project goals. Everything here is ultimately designed to satisfy the customers and the company.

In the next phase, consider any of the factors that are critical to quality. Define the metrics' requirements.

The way metrics will be measured has to be well-designed, because if not, you won't be able to glean any useful insight from the data you gather.

You have to be able to measure risk, process capability, and product capability – along with anything else you determine to be necessary.

During the Analyze phase, a lot of things need to be accomplished. Begin with developing alternative designs. Define the optimal combination of requirements to provide value within your constraints.

Consider conceptual designs. Look at the best components, then choose the best design to meet customer needs. It's at this point you calculate the total lifecycle cost of the design.

At this point, you have to ask which design will be the best for helping you to achieve your goals?

In the Develop stage, you must create a detailed design for the option you choose in the Analysis phase.

Start with a high-level design, then move into adding additional details to build your prototype. Identify any errors that may occur, so you can make modifications.

In the final phase of this project approach, you determine whether the design is acceptable. Will it work in the real world?

Conduct production-scale and pilot studies. From there, you'll also need to build an implementation plan to outline how the new process will move into standard operating procedures.

Differences Between DMAIC and DMADV

With DMADV project management, the focus is getting the process right the first time. It's about preventing problems in the future.

The focus is on all the quality, timeliness, and customer service (QTC) parameters. It makes use of qualitative tools, including KANO models. DMADV tends to be more of a long-term project since it measures customer needs and specifications.

DMAIC, on the other hand, is about minimizing deviations and variations in existing processes. It seeks to correct, rather than prevent. This approach focuses only on the mission-critical QTC parameters. It makes use of statistical tools.

This is better suited for shorter-term projects since it measures the current performance process.

Both methods:

- Use structure to reduce error and solve problems.
- Focus on the customer.
- Use teamwork to solve issues.
- Collect and analyze data to justify decisions
- Share many of the same tools, such as Failure Mode & Effects Analysis (FMEA), Design of Experiments (DOE), and brainstorming.

Where DMAIC addresses processes as they are, DMADV addresses the design process. Where DMAIC is reactive, DMADV is proactive.

Where DMAIC includes specific ways to solve a problem, DMADV is part of the process of building a specific way to solve the problem.

Where DMAIC includes controls to keep the gains in place, DMADV includes steps to ensure the finished design works and is valid.

The great thing about Six Sigma is that while manufacturing is the industry we see most of the examples from – it's not the only industry that can benefit from it.

You can apply these Six Sigma principles to improve any process in any organization. And thanks to the DMADV variant, it's not just useful for revamping processes, but also for developing and implementing new ones, too.

If you've got a process that's broken beyond repair with the typical DMAIC method, try working on it from the DMADV angle, treating it as an entirely new process.

Both methods give organizations structured processes to use to make improvements where needed.

When they are used appropriately with the right tools, they can help ensure all your LSS projects are successful. Ultimately, this saves you money and keeps your customers happy… and who doesn't want that?

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