

Six Sigma has two key methodologies:

- **DMAIC:** It refers to a data-driven quality strategy for improving processes. This methodology is used to improve an existing business process.
- **DMADV:** It refers to a data-driven quality strategy for designing products & processes. This methodology is used to create new product designs or process designs in such a way that it results in a more predictable, mature and defect free performance.

There is one more methodology called **DFSS** - Design For Six Sigma. DFSS is a data-driven quality strategy for designing or redesigning a product or service from the ground up.

Sometimes a DMAIC project may turn into a DFSS project because the process in question requires complete redesign to bring about the desired degree of improvement.

DMAIC Methodology:

This methodology consists of the following five steps.

Define --> Measure --> Analyze --> Improve --> Control

- **Define:** Define the problem or project goal that needs to be addressed.
- **Measure:** Measure the problem and process from which it was produced.
- **Analyze:** Analyze data and process to determine root causes of defects and opportunities.
- **Improve:** Improve the process by finding solutions to fix, diminish, and prevent future problems.
- **Control:** Implement, control, and sustain the improvements solutions to keep the process on the new course.

We will discuss more on DMAIC Methodology in the subsequent chapters.

DMADV Methodology

This methodology consists of five steps:

Define --> Measure --> Analyze --> Design --> Verify

- **Define:** Define the Problem or Project Goal that needs to be addressed.
- **Measure:** Measure and determine customers needs and specifications.
- **Analyze:** Analyze the process to meet the customer needs.
- **Design:** Design a process that will meet customers needs.
- **Verify:** Verify the design performance and ability to meet customer needs.

DFSS Methodology

DFSS is a separate and emerging discipline related to Six Sigma quality processes. This is a systematic methodology utilizing tools, training, and measurements to enable us to design products and processes that meet customer expectations and can be produced at Six Sigma Quality levels.

This methodology can have the following five steps.

Define --> Identify --> Design --> Optimize --> Verify

- **Define:** Define what the customers want, or what they do not want.
- **Identify:** Identify the customer and the project.
- **Design:** Design a process that meets customers needs.
- **Optimize:** Determine process capability and optimize the design.
- **Verify:** Test, verify, and validate the design.