

DMEDI or DMAIC?

That is the Question

As the acceptance of Six Sigma grows and penetrates deeper into common business culture, a question has arisen to determine when a process needs to be improved versus designed: How do you decide which roadmap is better for a given problem, DMEDI or DMAIC?

While clear to veteran practitioners, this question is not quite as clear to the general business public or newer Six Sigma professionals. This question also exists primarily due to the way Six Sigma has been *sold* to the business community. Most organizations have been sold on Six Sigma DMAIC as a "quick fix" to internal organizational issues and problems. However, the true benefit Six Sigma brings comes when the maturity model moves from fixing broken processes to properly building processes from the onset.

DMAIC and DMEDI: What are They Both Good For?

Before examining the decision process to properly select the best roadmap for a given project, we must review each methodology for what it is good for and what it is not good for. Here is a definition and breakdown of components and steps for each roadmap.

DMAIC (Define, Measure, Analyze, Improve, Control)

DMAIC is an analytical, data driven approach to eliminate weaknesses in active processes, products and services. DMAIC brings *incremental* improvements.

DMEDI (Design, Measure, Explore, Develop, Implement)

DMEDI is more of a creative approach to designing new robust processes, products and services. This roadmap is purposed to obtain a competitive advantage or *quantum leap* over current environments.

Both Define phases are purposed to provide completed charters with clearly stated business problems, desired results and scope limitations. With little differentiation between the two, we can move on to the second step of each phase.

The Measure Phase

DMEDI and DMAIC are similar in that they have five phase steps to completion. After the first common Define step the methodologies begin to differ significantly. The most important differentiation in the process lies in the second step, Measure. At first glance the steps seem the same for both, but under closer examination we can see that the measure phase in the DMEDI methodology is significantly more involved. The measure phase in DMEDI requires more examination than DMAIC because there is little if any existing process definition, baseline outputs (Ys), or critical customer requirements (CCRs).

Because of the lack of existing definition, the need for CCR development is much more significant in the DMEDI Measure phase.

To meet the need for clearly defined CCRs the QFD or house of quality is used in multiple iterations and phases. In the DMEDI path the house of quality can actually become a village to properly define a product or service that the customer truly desires.

"Unless you try to do something beyond what you have already mastered, you will never grow."

Ronald. E. Osborn

Where Lean Thoughts can become Reality

DMEDI or DMAIC?

Analyze vs. Explore

These two steps are similar but have significantly different deliverables. The DMEDI Explore phase delivers a conceptual design of a new process. The DMAIC Analyze phase is purposed to breakdown existing data of an existing process to identify potential root causes. Here the DMEDI phase is conceptual and the DMAIC phase is tangible.

Improve vs. Develop

Here the two phases also have differing deliverables. They are similar in that they both are both purposed to deliver a new process. Specifically, in DMAIC the Improve phase is purposed to produce a *rational* future state design and DMEDI is purposed to delivery an *optimal* design.

Control vs. Implement

The key differentiator between these two phases lies in their new process pilots. In DMAIC, a temporary, small-scale, future-state pilot has already been conducted in the Improve phase. In DMEDI the pilot is conducted here in the Implementation phase. Both pilots seek to validate the capability of the proposed process to meet or exceed the project objectives and identify problems. But, unlike the DMAIC's small-scale pilot, the DMEDI Implementation pilot is normally permanent and full scale.

Beyond the differentiation in the location and scale of the process pilots, the balance of the functions of the Control and Implementation phases are quite similar. Both are purposed to deliver comprehensive control plans and charts to monitor the activity of the new process.

Examining DMAIC and DMEDI Side by Side

Here is a side by side examination of DMAIC and DMEDI Six Sigma roadmaps.

DMAIC	DMEDI
Define – Determine Project Scope, Objectives, Resources, Constraints	Define – Very Similar to DMAIC
Measure – Determine Customer Groups, Determine CCR's, Obtain Data to Quantify Process Performance	Measure – Define Customers and Needs Using VOC and QFD, Determine CCR's
Analyze – Analyze Data to Identify Tangible Root Causes of Defects	Explore – Develop Design Concepts, and High-Level Design
Improve – Intervene in the Process to Improve Performance	Develop – Develop and Optimize Detailed Design
Control – Implement a Control System to Maintain Performance over Time Steven H. Jones – steven_jones@siemens.com – 513-336-1187	Implement – Validate Design with Pilot, Establish Controls, Full Scale Implementation Page 2 of 4

After examining a comparison of the two methodologies and contrasting differences, here are applications in real world environments to show how each model provides benefit. (Click on diagram to enlarge.) turnover.

"All progress is made by a lazy person looking for an easier way."

—Lazarus Long