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15.3. DMADV (Design) versus DMAIC (Improvement)

As stated in the "High Points of This Chapter" section, there is another Six Sigma methodology for *designing and developing* a new product, service, or process with no defects.

Design for Six Sigma, DFSS for short, follows the DMADV steps. DMADV is different from DMAIC as follows:

1. *Define*. Provides the goals and direction to design a new product or service with development of a team charter.
2. *Measure*. Collects and translates customer needs into CTQs. A CTQ is what is critical to quality in the eyes of the customer. DMADV may deal with many CTQs in one design project. Six Sigma DMAIC typically focuses on only one CTQ that is creating customer dissatisfaction or related to the problem at hand.
3. *Analyze*. Understand the information collected from the voice of the customers and define the design features that collectively will be developed into a concept and then into one or more high-level designs. DMAIC focuses on identifying the root causes of the customer dissatisfaction and the problem at hand.
4. *Design*. In this step, the final product or service design is developed. A detailed design with associated design elements is completed and the critical-to-process variables are identified, from which the process for creating and delivering the good or service is developed.
5. *Verify.* The new design plans are implemented and the organization prepares for full-scale rollout and puts control mechanisms in place. In DMAIC, we control the process to hold the gains. In DMADV, we verify that the project goals are met, that the customer receives the value expected, and assure that control is effective to deliver on the CTQs and product design.