

Source: Juran's Quality Handbook: The Complete Guide to Performance Excellence, 7th Edition

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4.1. High Points of This Chapter

1. Designing for quality and innovation is one of the three universal processes of the Juran Trilogy. It is required to achieve breakthroughs, new products, services, and processes.
2. An effective design process requires a robust method and structure to create new products (goods, services, information) and ensure that these together with key operational processes—including process controls—are developed prior to the introduction of the products to the marketplace.
3. The Juran Quality by Design Model consists of following simple steps, primarily leading to a much better understanding of the customers that will benefit from the new product. It is not a statistical design method as Design for Six Sigma is considered. It is often used to design new services and processes. The steps are as follows:
 - Establish the design targets and goals.
 - Define the market and customers that will be targeted.
 - Discover the market, customers, and societal needs.
 - Develop the features of the new design that will meet the needs.
 - Develop or redevelop the processes to produce the features.
 - Develop process controls to be able to transfer the new designs to operations.
4. The Design for Six Sigma model, often called DMADV, consists of a statistical approach to design applicable to manufactured goods. It follows similar steps and incorporates some of the tools in Juran's model:
 - Define the project and the targets.
 - Measure what is critical to customers and quality (CTQs) to establish the required features.
 - Analyze the information and create a high-level design incorporating the CTQs.
 - Design by creating detailed designs, evaluate them, and optimize them before transferring them to operations.
 - Verify the design requirements and execute the final product.