



## Are You Developing The Right Solution?

Developing a technology product requires multiple steps. The tendency for most people, however, is to start with the wrong step. They start by rushing headlong into developing a product without some of the preliminaries required to make sure they end up with the right product. It's the equivalent of building a house, only to find out later that you had the wrong plans.

To avoid this, keep the following in mind. It will minimize the chance of expending a large effort on the wrong solution.

**Don't rush into development.** Once a concept for a new widget is developed, the natural inclination is to go ahead full speed with the development process to turn it into hardware. After all, that saves time and money, right? The idea is don't worry about the details, we'll figure it out as we go along. The result: requirements change down the line because they weren't defined well in the first place. Redesigns become the norm, with frustration and time delays.

**Define the customer's needs.** Before the development cycle begins, focus on defining what the customer needs and is willing to pay for, and on ensuring that everything is in place to make the development a success. This means obtaining the input of others, including marketing, manufacturing, customer support and others to define the product requirements. It also includes market research to determine potential sales and may include intellectual property searches to avoid infringing on existing patents. Marketing research done early in the process helps clearly identify the benefits of any new product to the customer.

**Outline the requirements.** There are specific reasons that define the need for any new product. These reasons are sometimes implied, sometimes explicit, and a lot of times incomplete. It is paramount that the requirements for any new product or upgrade are documented and used to guide the process. These requirements must be outlined from the perspective of the customer.

Requirements include functional and technical specifications, geometry and weight; target production cost and estimated annual production quantities. These requirements should include absolute requirements (must-haves for the customer) and optional requirements (enhancements that are nice to have). This allows internal evaluation of the concepts before proceeding with full-scale development.

**Define the development budgets.** Time is money, and to develop a new product, scarce resources must be allocated. This includes personnel, equipment, and facilities. A realistic plan to develop a new product must be generated. This plan includes periodic reviews and sunset clauses that terminate or shelve a product if certain criteria cannot be met. Depending on risk, set aside contingency funds to cover overruns.

**Perform tradeoff studies.** Once the requirements are defined, concepts can be refined and other options evaluated. This process identifies options potentially better than the original concept. Tradeoffs between ideas should be based on how well each option satisfies the requirements. The top two or three viable concepts can then be refined further to determine the optimum solution.

Follow these guidelines and you'll have a much improved development process. Rush into full-scale development and your products will be less than optimal or, at worst, outright failures.