Six Steps To Developing Great Technology Products

What does it take to bring a new product to market? Especially a product that requires sophisticated technology to make it work? You'd think the answer would be straightforward, but it's not. When it comes to developing new products, a lot of companies don't have a process for harvesting the best ideas or for taking those ideas and turning them into viable products. The result: new products or upgrades that take too long, provide the wrong solutions, or never yield the return on the development dollars originally anticipated.

So – what does it take to get a new product developed? What do you do, other than rush headlong into developing your new widget? Set up and follow a defined process that ensures you give your customers what they're looking for.

Product development follows an six-step process from idea to production. Skip a step, and you take a chance that your money and effort will be spent in vain. The six steps are:

1. **Idea generation** - During this phase, focus on framing ideas in terms of a solution to a problem. This step will eliminate ideas that don't solve a problem or aren't suited to providing a benefit for the company. Then focus on defining multiple concepts to providing that solution. At this point, these concepts should include as many different approaches as possible.
2. **Product definition** – Take the concepts from step one and evaluate them based on their merits. Outline the customer's requirements in as much detail as possible. Then perform tradeoffs, based on the requirements, to select the best concepts.

   If no clear winner emerges, generate initial cost estimates for development and production. While these numbers represent educated guesses, they will define differences between concepts. If at this point still no clear winner emerges, refine the concepts, and go through another round of tradeoffs. Define how the resulting product will perform and generate schedules. At this point, generate proposals if required, either for internal review or for the customer.
3. **Design and Development** – This step represents the go ahead to develop hardware. Models, drawings, and schematics are generated, software is written and analysis is performed. During this phase, hold reviews to evaluate progress, and guide the development process. Initial test plans are developed.
4. **Prototype construction** – This step is the culmination of the development. Initial samples are built for review, evaluation and testing. For projects that require only a few units, additional analysis during the development phase often substitutes for prototypes. Test plans are completed.
5. **Verification and test** - This step is used to determine whether the product meets customer requirements. It includes inspections to ensure the product includes all of the specified functions and testing to verify performance requirements. For products with a small number of units, this phase ends with delivery and installation.
6. **Production** – For products with large quantity runs, initial units are used to refine the production process and to make sure production units meet the customer's requirements. Production then begins to build units in the quantities customers want. Technical issues are (or should be) limited to process issues, rather than product requirement problems.

   The tendency for most people is to start with step 3 and, after expending significant time and effort, to go back to do parts of step two. For internally generated ideas, Step 2, defining the product in terms of the customer's requirements, tends to get left out until the development is complete. Follow these six steps and you minimize the chance of expending a large effort with either no results or the wrong product.