

Planning for Product Design & Development

By Glen Kosowski

The planning stage is key to a successful product launch

Product development is a set of actions needed to create a new product for entry into the marketplace. In the design and development process, it is vital to think through the process and outline it in an organized fashion.

This planning step will help with the other stages of product design and development—such as creating inputs; verification of outputs; review, verification and validation; and controlling changes—that are essential for making a certified product. Through strategic implementation, effective communication and the triple constraint considerations of time, cost and scope, the design and development of a product can be easier to handle and organize.

Strategic Planning

In the planning stages, strategic implementation of the product using a work breakdown structure (WBS), and creating timelines and milestones can help the process flow.

A WBS is a chart of critical tasks illustrated to create relationships between the tasks. Through these illustrations, various scenarios can be deduced and optimal decisions can be made based on the scenarios.

Through the use of timelines, all stages of the project can be laid out, and necessary adjustments to the project can be made in a logical manner while optimal adjustments can be made to efficiently reorganize planning. In the timelines section, give adequate time to review, verify and validate the product. Consider changes that may need to take place if the product does not meet performance standards or customer requirements. If the product needs reengineering, these tasks will take time and may delay time to market. Preparation for these changes will make the unexpected less painful.

Using milestones, project managers can track the success of the project and keep employees on course. They also give employees an opportunity to see their success and keep them motivated to reach further goals in product development.

Effective Communication

Communication is a key element in helping a product get to market quickly. If all parties, including engineering, sales and marketing, and production, are involved in the planning process, you will get feedback from people who have different perspectives and expertise. Communication to gain outside expertise can be done through face-to-face product meetings; individual task groups; and Web conferences, forums and bulletin boards.

Another useful tool is project management software, which can help facilitate communication and keep projects organized. These programs often have communication tools built right in. Many can work with e-mail systems, have conferencing capabilities built in and include tools to help keep individuals on task.

Scope & Cost

The triple constraints to consider in product development are scope, cost and timeframes. Because we have already discussed timeframes, here we will focus on scope and cost.

For scope, items to consider include timeframes for putting the product to market; target customers for the product (high end versus low end); and resources dedicated to the product. Define the scope of the project from the beginning, or you will not have a clear understanding of the goals for the product.

In the scope, consider items that will be important to product certification. Here are some of the certification

factors to consider:

- Chemical reduction claims: Decide on the critical reductions that you plan on having for the unit, the reductions you would like for the product, and the reductions that are not necessary for the product.
- Structural integrity: Decide which components or materials will have the best impact on structural integrity and performance.
- Material safety: Decide which materials will come in contact with water and how they may affect the product water.

In addition, factor in regulatory requirements for the product design.

For cost, you not only have to consider the literal costs involved, but also the cost of labor hours; use of capital resources such as facility space and machines; and material resources such as the floating prices of metals. Create a budget for the product. In the budget, determine the actual costs you plan to spend and the man hours and time for use of capital equipment, and do a risk assessment on items that may be outside your control.

The planning stage is the first step in the design and development of a product and can be the most critical step in the process. The proper execution of this stage can determine if the product will be a failure or success. If maximum effort is not put into this stage, the product may be set for failure before the project has even taken off. *wqp*

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