

Product Development – Streamlining the Iterative Process

Key Points

- Planning involves a clear definition
- Start rough and refine with each prototype iteration
- Seek input and feedback from a diverse team (customer, engineering, manufacturing, service)
- Think to the future

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Search the internet for the term 'product development stages' and you'll find a myriad of definitions and images. While the terminology varies from one to another, most identify the following stages: Idea Generation/Concept Development, Screening/Feasibility Analysis, Development, and Production. Further, most definitions identify the iterative nature of product development. With careful thought, planning and execution this process can be streamlined to produce lean product designs. Here are some considerations:

Concept Development

- Seek input from all interested parties, especially the customer, and consider many options; then refine ideas to identify a robust and viable product.
- Focus on what you know and seek help in other areas.
- Do your research (research, R&D, proof-of-concept).

Feasibility

- Ask questions and seek answers that will identify the risk involved and the chances for success.
- The answers will also help optimize product development, business planning, and protection for intellectual property.

Development

- Begin with a clear definition of the product to streamline the design process and minimize iterations.
- Start with a rough prototype, test it, get user feedback, and then refine the design.
- Focus on function first. Make sure the design functions as needed before refining size, shape and other less essential details.
- Use a series of prototype design/build/test iterations to improve and refine the design.
- Incremental improvements provide the flexibility to change directions without major redesign efforts.
- Add non-essential features (cosmetics, graphics) later in the development process to optimize workflow.

Production

- Validate the manufacturing process using a small quantity of pre-production parts.
- Use pre-production parts for compliance and reliability testing.
- Keep design engineering ready to support the manufacturing team.
- Be prepared to quickly make improvements based on feedback from the initial market introduction.

Think to the Future

- Start developing your improved product or your next product early to fit the maturity of prior products.