



Product Development and Launch

Boston ENET - How to Validate Your Idea
October 3, 2023



Primaira, LLC is a product development company with integral product launch center.

- Primaira, LLC offers end-to-end product development.
- We support design, prototyping, testing, regulatory review, costing, quality, manufacturing implementation.
- We have decades of experience developing products for startups and market leaders:
 - Consumer products
 - Major appliances
 - Medical products
 - Health and safety products

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Have a clear eyed view of market need and the competitive landscape.

- What products are available that currently address the need?
- What are the gaps?
- How much is it worth a customer to address the gap?
- What issues does my concept have that I'll have to address?
- What skills do I need to have to develop my concept?
- What will it really take to bring my product to market?
- How many unknowns am I trying to resolve?

The initial step of product development is to define and document product requirements and specifications and then create a concept that meets them.

Product Requirements

Product Specifications

Concept generation, review and down-select

Intellectual Property Creation and Protection



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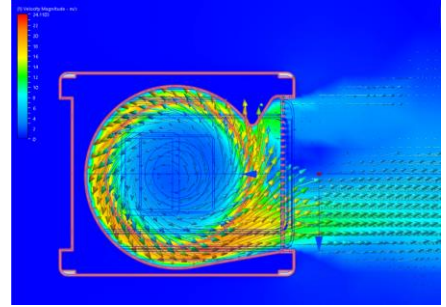


In this phase of product development you are defining what you know and what you need to know.

- An experienced, multi-functional team is critical to identifying important technical development issues early in the program.
 - Identify alternative approaches to address roadblock.
 - Use analytical models to extrapolate from tests.
 - Understand the regulatory environment –product or process based?
 - UL, NSF, FCC, FDA (PDP)
 - Develop an early cost estimate for the product.
 - What are the markups along the chain?

The next step is to demonstrate the technical feasibility of the concepts that meets the market need.

- Conceptual design
- Works-like prototype or subsystems
- Bench-top testing
- Analysis
- Preliminary costing
- Regulatory review
- Detailed development plan



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Technical elements are explored and resolved in depth in this phase.

- Progress from feasible concept to a detailed design and working prototype
- Use FMEA (failure modes and effects analysis) to understand risks.
- Incorporate consideration of manufacturability.
- Prepare for change from original concept
 - Critical design review
 - Schedule change
 - Technical pivot
 - Market pivot

Begin detailed design and verification testing with a solid plan for development steps.

- Industrial design and ID integration
- Mechanical CAD design
- Electronics design/firmware development
- Engineering prototypes
- Verification testing
- Consumer/Customer Testing
- Manufacturing planning
- Identify vendors
- FMEA/Quality planning
- Critical Design Review

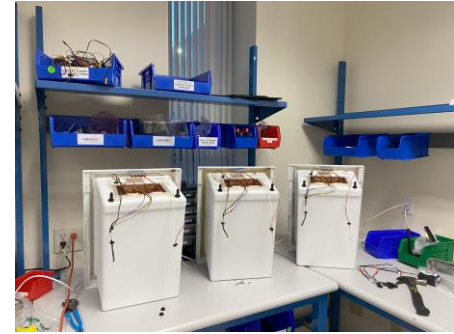


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Phase IV of the product development process involves finalizing a design package for manufacturing implementation.

- Final specification and documentation
- Pilot production prototypes
- Regulatory approval
- Field Testing
- Tooling fabrication
- Manufacturing process development/quality planning
- Product/Process Validation



There are options to calling contract manufacturers overseas and waiting with fingers-crossed to see what you get.

- Primaira's product launch center develops and verifies production processes
 - Ensure that your products meet your specifications at your quality and cost requirements
- Early pilot runs in the US
 - Allow hand-in-glove process/product development and vendor selection.
- Pilot products are available locally
 - Use for field trials or product demonstrations.
- On-shore PLC allows refinement of product and process
 - Before investment in high volume manufacturing and tools.



Thank you
Questions?