

What is Product Development Process?

- Five basic functions of good product development process
 - Guide
 - Monitor
 - Communicate
 - Control
 - Document

Guide

- Provides a battle plan
- A checklist of actions required to reach the endpoint
- Communicate cross-disciplinary requirements in complex organizations
- Compensate for inexperience or unfamiliarity

Monitor

- A 'Dashboard' for company leadership
- Provide visible feedback of product development
- Predictability
- Consistent reporting
- Allows for "forecast ability"

Communicate

- Provide forum for product communication
- Provide for a common vocabulary between disciplines and segments of a company
 - Example... How many definitions are there for "Prototype"???

Control

- Provide "Go - No / Go" Gates
- Create safety valves for project drift
- Checks and Balances
 - Schedule Accountability
 - Budget Accountability
 - Product Performance
- Accountability
 - Product Profitability

Document

- Capture decision making
- Avoid revisiting decisions later in the project
- Archive project information
- Capture 'lesson's learned

Product Research

- **Define** Market / Users
- **Generate** Opportunities
- **Develop** Opportunity
- **Refine** the Opportunity

Product Research The role of engineers

- May be very minimal in many companies
- Marketing, finance, strategic planning and market research are heavily involved
- Engineers, however, can identify opportunities which are only visible to those who are technically experienced.

Product Research- Activities

- Inputs:
 - Market research
 - Voice of the Customer
 - QFD as a structured methodology
 - Business Plan / Marketing Strategy

Product Research- Activities

- Outputs:
 - Opportunity Description
 - Project Goals and risks
 - Business plan with financial targets
 - Project Scheduling
 - Validated Project
 - Authorization to Proceed
 - Leadership commitment and support

Characteristics of good product development

- Clear and consistent vision for the product
- Strong program management
- Skilled, experienced, motivated and energetic team
- Simple, easily communicated and understood plan
- Focused, efficient, product validation
- Early manufacturing involvement

Clear and consistent vision for the product

- Written vision for the project
- Simple criteria for tradeoffs
 - Unit cost
 - Performance leader
- Reasonable and clear specifications
 - Fine line between "me too" and "fantasy-specs".
- Upper level commitment

Strong Program Managers

- Empowered
- Respected
- Experienced
- Passion for the product
- Able to
 - build teams and delegate
 - control budget and resources
 - evaluate tradeoffs
 - make decisions

Easily communicated and understood process

Your PDP needs to be simple enough so that everyone in the company knows and understands it!

Combine rigorous, structured techniques with feel and experience

The Tradeoff:

Simple enough so that the Process is effective

Not so complex that monitoring the process becomes a significant resource drain

Clear, unambiguous milestones and deliverables!

Good: Release Drawings
Bad: Evaluate

Experienced, motivated and energetic team

Many PDP's lack "Design the Product" No Process or Leadership in the world can make up for poor design!

Designers and engineers need to work together to establish trust, respect and understanding. This can't come from a process.

There is simply no substitution for working together.

Focused, efficient, product validation

Get into hardware ASAP!

Must validate the performance of the product with intended clients!

Utilize rapid prototyping for subsystem validation (Crude prototype early is better than a perfect prototype late)

Leadership Commitment

PDP's are very Fragile!

Projects die for political reasons as often as they die for technical, financial or marketing reasons.

Understanding and support for inevitable tradeoffs is crucial to program success.

Leadership means being willing to take and manage reasonable risk in exchange for gain.

Pitfalls of Product Development Processes

Lack of flexibility

The process alone is not enough. You still have to design the product!

Inability to balance or manage reasonable tradeoffs

Autocratic direction

Pitfalls of Product Development Processes

Acceptance of an unrealistic schedule

Mediocre products due to "polite consensus"

Malicious obedience to specifications

Failure to trust the judgments and instincts of the team

Slave to the Process

Conclusions

A rigorous, well thought out and well executed Product Development Process is a powerful tool

The Product Development Process itself cannot guarantee success.

It must work in conjunction with:

- Skilled, knowledgeable, experienced leadership and employees
- Adequate resources
- Sufficient time