

Product Engineering: How to get the best out of your Engineers



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Engineering Types

- Industrial Design versus Engineering Design
- Design versus Manufacturing Engineering
 - Mechanical, electrical, chemical
- Conceptual versus “tell me what you want”
- Customers versus “just do the engineering”
- Customer focus (marketing and requirements)
- Business focus (cost and schedule)

Right Tasks

- Make it producible
- Make it reliable
- Make it easy to use
- Make it adaptable (accessories)/ modular
- Make it high performance
- Optimize performance
- Make it low cost
- Innovative
- Tooling
- Robust design
- Scientific understanding of product performance
- Meet standards/ create standards

Right Tasks (cont.)

- Serve many market applications
- Provide a full product portfolio
- Collaboration
- Leading edge technology
- Apply new technology to industry
- Automation
- Consider alternatives
- Competitive assessments
- Novel materials
- Long shelf life
- Safety
- Environmental

Attitude Toward Engineers

- Clarity on “minimum” required. They’ll want it to be perfect, with the latest technology
- Understand the many constraints they are trying to balance
 - Ability to make decisions and balance those competing needs
- Ask “how do you know” – it needs to be proven by test

Engineer Time

- Tasks that engineers waste time on – and do not like to do
 - Paperwork/ writing reports
 - Meetings
 - Details of building and executing tests
 - But they love to tinker with prototypes
 - Creating drawings

What Does NPD Look Like

- NPD covers several areas
- Understanding customer needs
- Translating needs into engineering specifications
- Creating conceptual solutions
- Detailing the “right” solution
- Testing the design
- Launching the design into manufacturing

Where is the Engineering

- The early stages of NPD are a combination of marketing and business.
- However, engineers may also be involved in execution of those activities.
- Tools to support the engineering activities

Where is the Engineering (cont.)

- Analyze customer demands
- Critique functions
- Set quality characteristics
- Identify critical parts
- Set breakthrough targets
- Set cost targets
- Set reliability targets
- Select new concepts
- Identify breakthrough methods
- Identify manufacturing methods