



# How to Design and Deliver Attractive User Experiences That Improve People's Lives.



6 key strategies for success+  
common mistakes to avoid

**PRODUCT DEVELOPMENT  
BEST PRACTICES SERIES**



# Create an Inspiring Vision

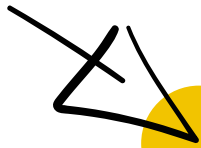


Having disruptive technology with the potential to improve people's lives is exciting, but it's only part of the story. **You must be able to clearly define your entire vision, including a realistic path to deliver**, or risk losing credibility with potential investors, suppliers, and development resources.

# 1.

"... if your product doesn't solve a problem or fill a need for customers, investors aren't going to share your excitement."

—How to Pitch Your Business Idea to Potential Investors, [businessnewsdaily.com](https://www.businessnewsdaily.com)



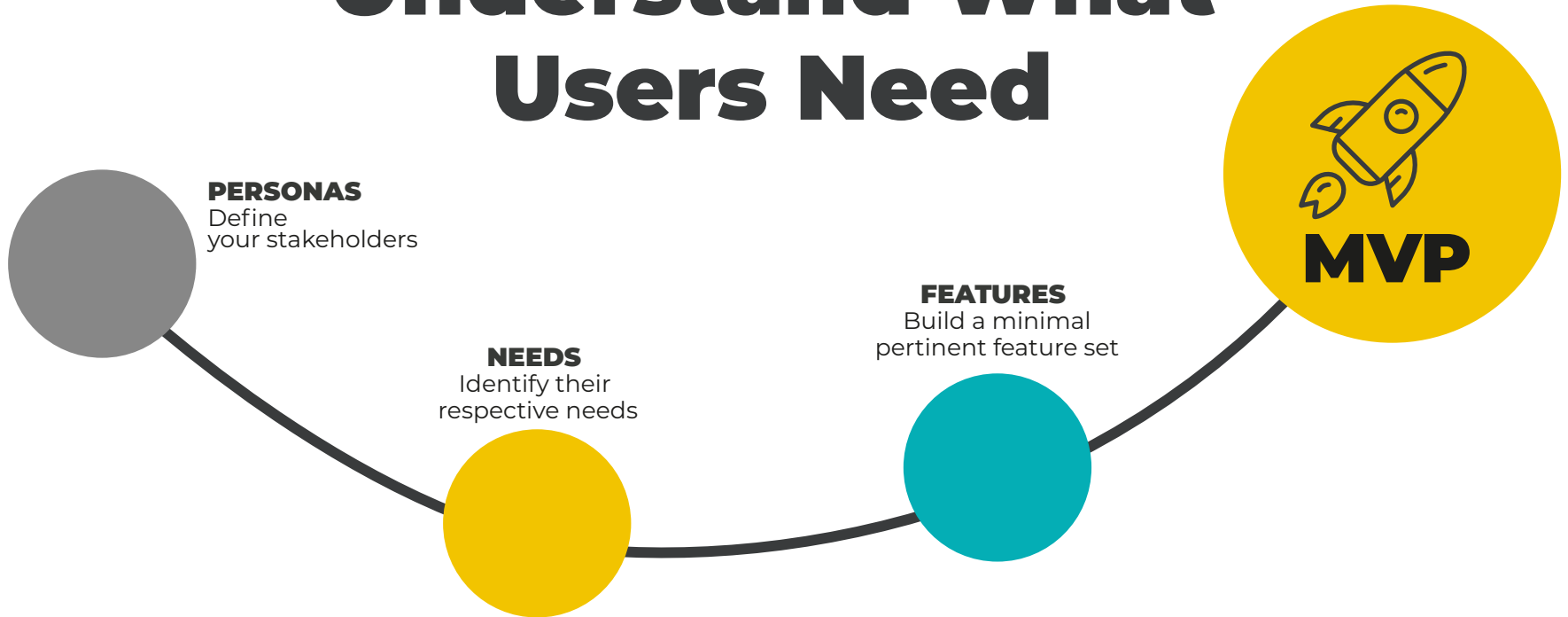
**Avoid this common mistake:** focusing only on the technical aspects and ignoring the business case for your product.

It's important to not only understand the technical aspects of a product, but to **have a comprehensive vision of the total project from a business model perspective**, including who the end users are, what your value proposition is for them, what resources you require, as well as development costs and revenue streams.

A clear explanation of what makes your technology innovative and unique, why it's needed, and how you'll execute will **inspire your development team, your suppliers, and your investors.**



# Understand What Users Need



Defining the **minimum viable product** (MVP) as part of your initial vision is essential. What is the simplest version of your product you can make that's the right fit for the market? **Who are the users? What do they truly need?** Creating comprehensive user personas is a critical step in understanding true user needs.

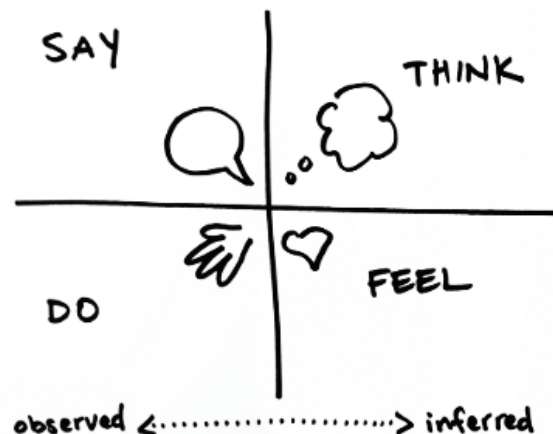
# 2.

"... 42 percent of failed startups cite a lack of need as the reason they went under. Which means that more than half of businesses die because they simply don't know what their users want."

—21 Side Projects That Became Million-Dollar Startups (and How Yours Can, Too), Inc.com

Ideally, you should develop user personas by interviewing multiple types of users and visiting the actual environment(s) where your product will be used. **Understanding true user needs requires being flexible to change and open to new information**; not simply looking for evidence to confirm preconceived ideas.

With true user needs understood, you're well-equipped to define the features needed in your MVP. With the MVP determined, you can develop a **roadmap** of deliverables with a **realistic timeline**.



**Avoid this common mistake:** skipping in-depth user needs research and taking information provided by one type of user to defend your original product definition.

# Design for Humans



People buy with their emotions. It's to your advantage to present them with a product that's visually and aesthetically pleasing and easy to use. Even if your technology is genius, its success rests on whether or not people will use it.

**Humanizing technology is creating an experience that is both natural and attractive for users.**

# 3.

"... it's not innovation that sets Silicon Valley apart from other centers of technological development—it's a willingness to iterate."

—Silicon Valley Isn't Innovative, It's Iterative: Four Proof Points, [forbes.com](https://forbes.com)



**Avoid this common mistake:** not consulting with engineering early in the process to ensure that the design takes technical requirements for internal architecture into account.

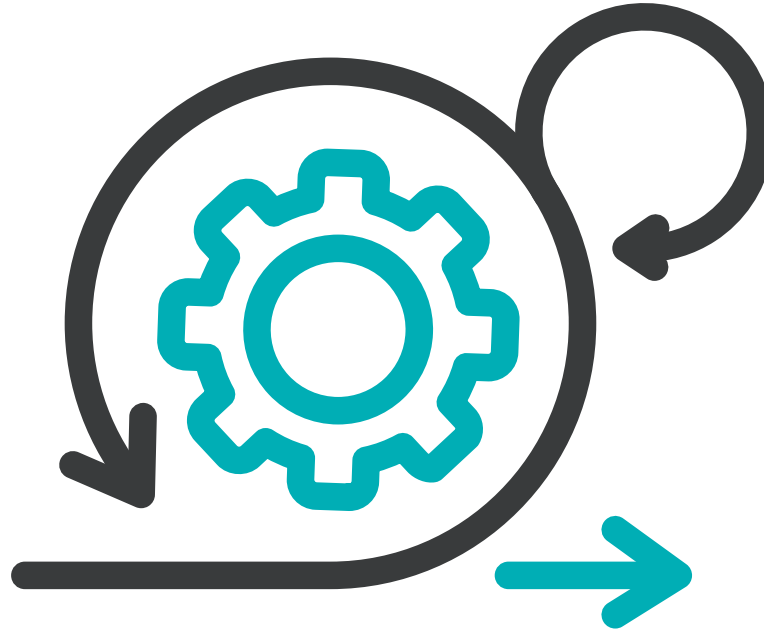
## How do you humanize your technology?

You must repeatedly take your concept to target users, show prototypes, collect information, and refine your design. Keep in mind that **user feedback helps you remove barriers that could impede adoption of your technology.** Test early and often, and stay open to all the information you receive. **Understand and appreciate that the design process is iterative.**

At first, the prototypes can and should be fast and rough, then as you move along in the process you can share more sophisticated models that more accurately simulate the user experience. The models should go beyond the interface and integrate internal architecture to ensure that the size and shape you're designing can accommodate the technology that needs to be inside. **An iterative design process moves you toward creating a product concept that's workable both from a user standpoint and a technical standpoint.**



# Engineer a Solid Product



When the concept is well-designed and you have a refined product definition, you change modes from concept to product. At this stage you **implement engineering discipline without losing flexibility to create a streamlined development process.**

# 4.

"Members of your integrated product development team need to be comfortable getting out from behind their screens and engage with customers in the field."

—The No. 1 Reason Companies Don't Make Great Products—and What to Do About It

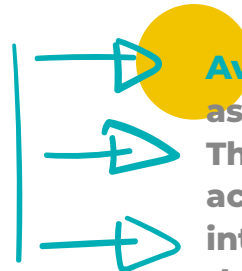


**Test Early. Test Often.**

The industry you're working in will factor into your development process at this stage. For consumer market products, **saving time is crucial** to minimize burn rate and speed your time to market. For the **medical device industry**, a disciplined documentation process is essential.

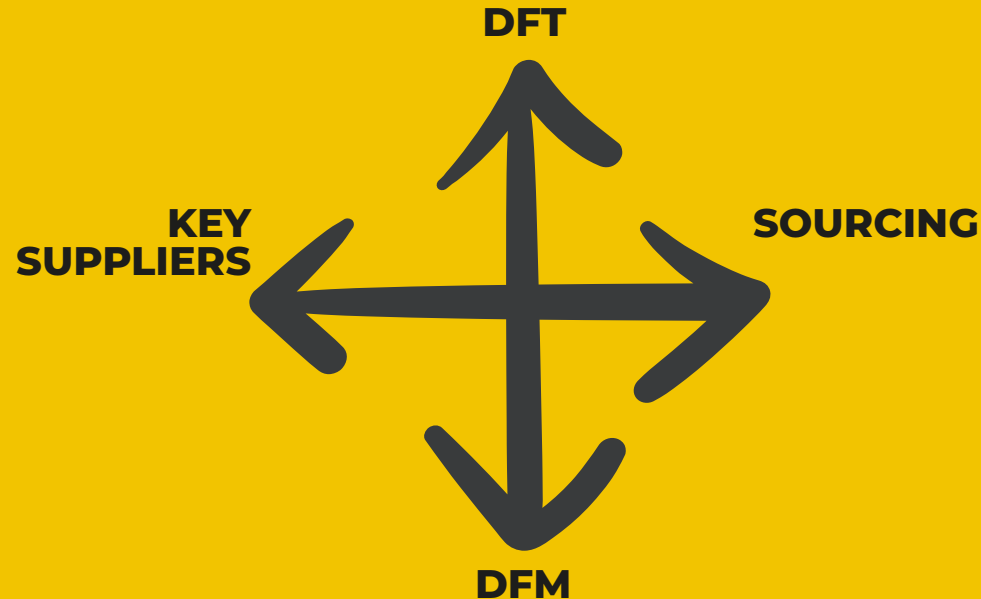
**Use a method for visibility so you know what needs to be done and who is working on what.** Many methods exist and will work if you use them. Subject your product development to frequent review. This can be as simple as a peer review by a colleague to validate that the work is being done correctly.

Similar to the concept stage, **the product stage also requires frequent testing to validate any assumptions and not leave anything to chance.** It's important to keep the user experience top of mind as the technology is developed.



**Avoid this common mistake:** making assumptions without testing them. There will always be factors you can't account for until you put a prototype into the field for testing. Discover these issues early to prevent problems from escalating.

# Respect Manufacturing Constraints



Your design is refined, your product is well engineered, the market loves it, you receive your first orders, and you face the big question: **can you actually manufacture and deliver the product you developed in a reasonable timeframe?**

# 5.

"... ignoring manufacturability can lead to sporadic quality issues, delays in initial shipments, COGS that exceed pro-formas, and even complete rebuilds of production tooling."

—Strategies to Optimize Product Designs for Manufacture, [www.ecnmagazine.com](http://www.ecnmagazine.com)



**Avoid this common mistake:** not considering all manufacturing-related requirements early and in all phases of development.

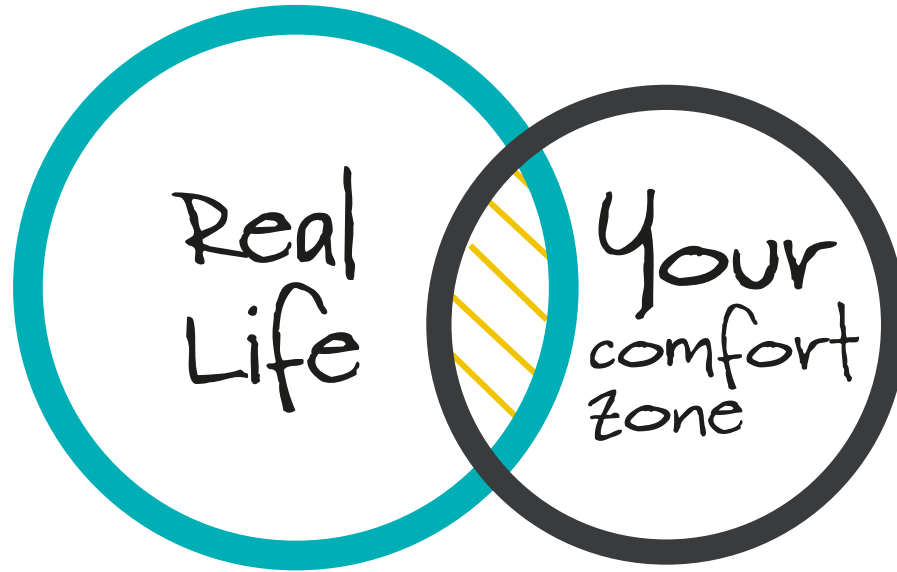
The ability to manufacture what you developed requires consideration of **all manufacturing needs and constraints** from the early design stages so you're ready to go when orders come in.

**Designing for manufacturing** is one part of a comprehensive manufacturing strategy. You also need to **involve key suppliers early, including sources** of the materials you'll need as well as assembly operations. Leading-edge components often have 4-6 months lead time. Planning key procurement activities in parallel with engineering helps avoid huge delays and accelerate your arrival on the market. What are the tolerances on the machines used for assembly?

**Testing and quality control must also be considered early**, before you arrive at the manufacturing stage. How will your product be tested to ensure quality and conformance? Most testing strategies generate additional engineering requirements. It is much faster to implement them in the development cycle than at the end.

**All manufacturing-related questions and constraints must be considered well in advance** so you're prepared when you reach the manufacturing stage.

# Embrace Uncertainty



No matter what industry you're in, if you're developing new technology, there will be uncertainty. You will have to get comfortable outside your comfort zone.

The trick is to **work on the hard issues first – the unknowns that scare you the most.**

# 6.

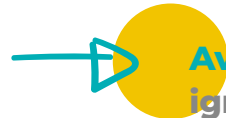
"Given the volatility and uncertainty of the business world, we are less and less likely to have a predictable route to success —so stepping into the unknown on a daily basis is the only way to go."

—The Biggest Risk Is Not Taking One. Here Are 3 Simple Steps To Better Managing Uncertainty, [forbes.com](https://forbes.com)

By **tackling the big, tough challenges head-on**, without delay, you'll build confidence, and your investors will also have confidence in your abilities.

**You can manage uncertainty by using a rapid learning cycle.** If you aren't able to make a key decision, list everything that's stopping you – those are your knowledge gaps. To fill those gaps, list the simplest action you can take, whether it's **research, reaching out to others, or finding the answer yourself through prototyping and testing.** As you gather the information you need, you'll be able to confidently make decisions and document why you made those decisions.

**Through the discovery of new information, you'll reduce your uncertainty and close knowledge gaps.** When a new decision with new gaps comes up, you'll be confident that you can find the information you need. Over time, uncertainty becomes less scary and more routine.



**Avoid this common mistake:** not facing fear by ignoring knowledge gaps and putting off decisions until you're forced to make them without gathering the required knowledge.

## Links to sources

- 1 - How to Pitch Your Business Idea to Potential Investors, [businessnewsdaily.com](http://businessnewsdaily.com)
- 2 - 21 Side Projects That Became Million-Dollar Startups (and How Yours Can, Too), [Inc.com](http://Inc.com)
- 3 - Silicon Valley Isn't Innovative, It's Iterative: Four Proof Points, [Forbes.com](http://Forbes.com)
- 4 - The No. 1 Reason Companies Don't Make Great Products—and What to Do About It
- 5 - Strategies to Optimize Product Designs for Manufacture, [www.ecnmagazine.com](http://www.ecnmagazine.com)
- 6 - The Biggest Risk Is Not Taking One. Here Are 3 Simple Steps To Better Managing Uncertainty, [forbes.com](http://forbes.com)

## Let's co—create.

At NOVO, design and engineering work together at the innovation table in a unique collaboration process that creates synergy. Throughout the strategic process we advocate hacking and experimenting along with extensive user research to ensure that we humanize technology.

**Learn more about digital and physical product development and our co-creation approach at [fromnovo.com](http://fromnovo.com).**



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