15 Essential Tips for Designing Profitable Products

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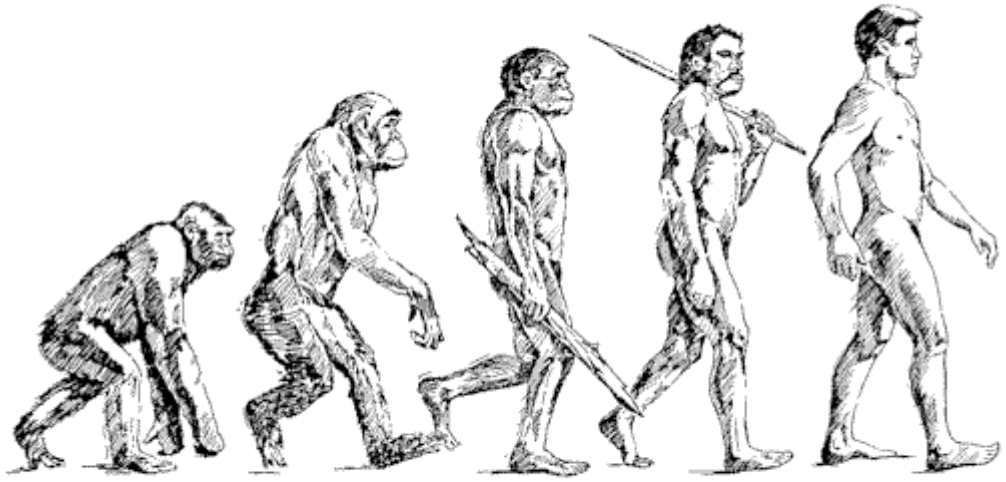

Preface by Simon Hobbs - Ingenia Industrial Design

Simon Hobbs is a partner at Ingenia Industrial Design, a product design and engineering consultancy.

In over 25 years of design experience Simon encounters many common hurdles that need to be overcome during the design process. At the centre of every design, the key motivating factor is without fail, profitability, which every decent hardworking designer will have at the heart of their design processes.

There are many things which when combined, will contribute to the success of designing profitable products, and of course that will be different for each product depending on its purpose, complexity and market place. We have put together these tips to focus attention on those things that will make a difference when contemplating your design project, regardless of the product type, to help to develop a successful and profitable outcome.

Ingenia Industrial Design works with companies to design and make their products by offering a range of services including: proving the ideas will work; developing desirable designs that can be produced affordably and profitably; prototyping for testing the market; and manufacturing initial product batches.

1. Understand your market – is there really a need for this?

Research into the intended market place is crucial. How big is the market? Is it local or international? How many competitor products are there? What is the unique selling point? What is the target market share for the product and therefore how many units could be sold per month/year? It is most important when predicting these figures to be realistic!

In order to ensure the product features are as applicable to the consumers as possible it is useful to carry out customer interviews and observations. What are their goals? How do they go about each task in question? What do they feel could be improved?

If you have a product idea and there is a gap in the market, it doesn't always mean that there is a need for it or that your product will be successful. The key is to make sure you carry out thorough market and user research to determine if your product idea is valid, feasible and potentially profitable before beginning any design work.

2. Value the opinion of others

If it's our idea, we can take things very personally. It is critically important to seek feedback on the product throughout the development process; but especially so before you start. Ensure whoever you discuss your idea with signs a **Non-disclosure Agreement** and then seek input from experts (perhaps design experts or industry experts) from your new product area. It is important that this feedback is truthful and comes from people who will give their honest opinions and thoughts about the ideas and proposals. Your close relative may tell you what a lovely idea your product is, but unless they really understand the industry and the problem, you are better off asking somebody who will give you more objective advice.

3. Set SMART Goals and be clear about where you are heading

We wouldn't set off on holiday without knowing where we were heading. Before designing or redesigning a product it's a good idea to set some clear goals. The SMART method is a recognised way of setting goals; this means the goals should be Specific, Measureable, Achievable, Realistic and Time-framed. The clearer the goals, the more likely it is that the result will be exactly as anticipated.

To be specific and measurable the goals should detail the figures or standards to be met, which will enable the end solution to be tested or measured against the original requirements.

The goals should be achievable, given a reasonable timescale and have a realistic budget. Product design goals need to be aligned with business goals to ensure everyone involved, whether they are investors, employees or the design team, are comfortable with and support the plans, this should ensure full cooperation from all parties.

Once goals have been finalised, share them! It's vital that all members of the team (including the designers) know what the aims and objectives are from the beginning of the project.

4. Set a budget – and don't budge from it

What is your budget for the design and development of your product? If your answer was 'I don't know', stop and think about this carefully before going any further. It is important, first, to understand exactly what is involved in developing a product from conception to a manufactured and saleable product and secondly, to decide how much you are willing to spend and how you are going to fund it. You should not begin the design development process without having established a figure that you can afford to spend on it. There is no point in getting half way through a project only to discover you don't have enough funds to complete it.

5. Write a thorough brief - a good product can only come from a good brief

If you define the problem in a clear product brief, then a solution can be tailored and built. The product brief forms the basis of the specification for each part of your product. Providing a detailed brief should ensure the designer can meet the needs of the product as closely as possible and can give precise advice on design development phases, plus prototyping and manufacturing methods.

A good brief involves detailing:

- What the product will do and how it will do it
- Any specific technology to be incorporated
- Knowledge of any other products or components with which the new product must be compatible
- Official standards with which the product must comply
- The unique selling point of the product

Omitting any of this information at the briefing stage can cause considerable delays and problems and re-briefing at a later date may mean a complete redesign is necessary.

6. Solve the risky technical bits first

Most projects use some sort of staged project plan where tasks are allocated time and resources, and ordered in terms of practicality or importance. Prioritising high risk areas means that if significant changes are required to the fundamental way that a product works or looks then that can be addressed. In some cases the end product will change so dramatically that it is barely recognisable from the original concept, sometimes opening avenues that were not previously considered. In other cases investigating the high-risk part of the project will demonstrate that it is not feasible to produce the idea or product in its current form. Identifying risk can be quite difficult and varies from project to project.

For example, it may be a question of:

- Whether the parts can be made cost-effectively enough to compete
- Whether standard components used are available - and continue to be available
- Whether a mechanism will work or whether there are strict standards to comply with
- Structural strength or overall size.

In all cases identifying the high-risk area and solving that first will save time and money.

7. Use existing technology and 'Off the Shelf' parts where possible

Why reinvent the wheel – unless you can improve it. Using existing technology and off-the-shelf components where possible will cut down design time and greatly reduce part costs. There is no point in redesigning the wheel if there is a part or widget that can solve the same problem. Use of existing parts will mean tooling costs can be eliminated and very often will mean there is access to information about the lifecycle of the part, such as fatigue testing where the parts have been tested to failure.

8. Know Your Production Volume

Make a realistic estimate of the anticipated production volume of your product. If you are only expecting to sell 100 a year it will make a big difference to how the product is designed and manufactured then if you were to sell 10,000 a year. At the same time, don't estimate that you are going to sell 10,000 a year, design a product accordingly only to find that you can only sell 100. Do your market research and, if possible, seek letters of intent from potential buyers before estimating production volumes as it will have a huge impact on how a product will be designed and manufactured.

9. Ensure all parts to be incorporated are considered from the start

Where possible it is best to fix the specification of a design as early as possible. In many instances the design will be a shell that wraps around and supports a series of internal components. If one of these components changes, it could mean that every component that has been designed needs to be modified and in some cases that the design simply isn't able to be manufactured.

For example, we recently worked on a security device which incorporated a camera in the assembly, the camera changed a few months into the project to a lower cost alternative, this was the correct decision for the overall success of the project but it had knock-on effects which meant a new rear panel had to be designed and internal components added.

A good design team should work with you to overcome these hurdles and help you to produce the best possible product with the time and resources available. However, to reduce cost and lead times it is a good idea to provide a list of all parts in your brief, and be confident that those parts will remain the same.

10. Build in time for testing

When budgeting and planning timescales for your project; always allow for testing. It is an element that is sometimes overlooked but is always crucial in the later stages of the development of your product. The level of testing depends on the product type, its function and what standards or regulations it must conform to. A medical product, for example, is likely to take several months or more to pass the testing stages and obtain the necessary approvals before the product can be sold. Testing can also be very costly, so bear these things in mind when planning and budgeting.

Seek advice on what standards and regulations the product needs to conform to prior to product development, as this information will form a large part of the product's design brief and specification and will lead to a product that is more likely to meet requirements and progress through this stage smoothly.

You may find that some markets will not stock your product unless it has been tested by an industry body or approved as safe for use. This means that you may not be able to start marketing it without permission.

11. Keep things local if possible

Many companies we speak to suggest that production in China or India is the only option for manufacturing but there are some excellent companies in the UK whose expertise can be invaluable in producing high quality parts and in removing some risk from the production process. Manufacturing in China is appropriate for companies that are able to allocate resources to manage production of typically high volume products. The potential cost-benefits make manufacturing in any developing nation worth considering but it is always worth considering manufacturing in the UK. Product development is about forming a team of people that trust each other and communicate well. Although this is possible overseas, it's much easier to achieve (and organize) in the UK.

Despite the impression given by the media, there are still successful, highly-skilled manufacturers in the UK that are capable of some of the best work in the world at competitive prices. Their advice and support is a major benefit that can reduce lead times and help to spot potential snags before they cause problems. It is also worth remembering that transferring Intellectual property (IP) overseas can be hard to control and infringements hard to challenge.

UK manufacturers have created links overseas which they manage for higher volume products or to carry out labour intensive operations. Their intention is to provide clients with the cost benefits of overseas manufacture with the benefits of parts produced in this country.

12. Keep simple production and tooling methods

Aim to keep production methods simple and appropriate to the production volumes that you anticipate. Also, as a general rule always aim to keep the design of your product simple too, as the more complicated the design becomes, the more expensive it becomes to manufacture. Simple component design and production methods lead to an increased profit margin.

Over-complication can increase cost of tooling and parts. Where possible, Ingenia Design reduces tool complexity and shares components. For example, if a component can be used in two positions or be used 'back to back', this not only reduces tool cost but doubles the quantities of the part therefore increasing the volume of production and lowering the cost because of the economies of scale.

13. Plan your route to market

It is very difficult to sell a product without establishing a clear route to the target market for your product. Companies with a client base can enhance their range, safe in the knowledge that, if market research has been positive, then sales to that market are likely to consist a major part of the sales figures. However, those who develop new product in isolation can find that selling through a series of distributors may be the best way rather than selling direct. In this way the product developer can use the experience and existing client base of a company already in the appropriate field. Whichever method of selling is chosen, plan your route to market carefully.

It is also important to build in the cost of marketing your product. It won't sell itself and marketing may well cost as much as the product itself so it's important to build this in to your price.

14. Be realistic

Are you really going sell 10,000 units per year? Is your product really going to make millions in its first year? Is it feasible to get your product from a sketch to a product on sale internationally in just 6 months? Can you achieve all of this on a small budget? Of course, all of these things are possible and may be possible for your product, but ask yourself these questions and think about them carefully because being realistic about these factors at the start of a project will make a big difference to how the product is designed, the overall project outcome and you or your company's expectations of how the project will progress. Get some impartial advice from people who have experience in product development or experts who are familiar with your product's market to determine if project goals and expectations are realistic.

High volume sales can be achieved by gaining access to trade bodies or large distributors, but these organisations can take time to convince.

15. Stick with It - there will be hurdles to overcome

Product design and development is about being tenacious when it comes to problem-solving. Solving one problem may well result in another cropping up. Go on to solve that (and the subsequent ones) and the end will be closer. Don't give up. It's a challenge but there is likely to be a solution.

Conclusion

Product development does require a structured and collaborative approach. It is a meeting of many functions, combining customer knowledge, manufacturer capability, materials experience, design skills and financial liquidity. Keeping communication at the heart of the process will ensure that you remain on target, on budget, and complete the project with a product delivering maximum profitability.

We hope you find these tips useful. If you are interested in developing your product idea into a profitable product Ingenia Industrial Design offer a free one hour consultation. Please contact us on 01858 462761