

# Product Development Primer

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Having the greatest product idea in the history of the world is great, and exciting, and fun, but it's a very long and bumpy road from having the idea to actually making money on it.

## **Produce it yourself or sell the idea to someone who knows what they're doing?**

Producing a product for sale on your own is a very daunting task – unless we're just talking about cupcakes from a card table on your front lawn. The costs can be very high, even astronomical, for the average person. For instance, to tool up for a simple plastic product such as a new and improved travel mug could be from \$30,000 to \$100,000. Then, you still have to package, market and distribute it.

If you're not up to the challenge of finding financing for such an endeavor, you might consider pitching your idea to an established company in hopes of them buying it from you. Just getting someone from a large corporation to listen to your sales pitch can be nearly impossible. And they're not interested in looking at a napkin sketch. They'll want to see a nearly finished product design, tooling cost figures, projected manufacturing costs, and working prototypes.

If you get this far, a company may either make you a lump sum offer for the idea and all rights to it, or they may offer you a very small percentage of the sales they realize from it.

## **Patents**

A patent is only as strong as your ability to pay your attorney to fight infringements. Having a patent on a product is not a guarantee that someone won't copy it. A patent just gives you legal standing to fight someone who copies it. A patent can cost upwards of \$5,000 just to apply for.

Besides worrying about whether or not you need a patent for your product, you also need to be concerned with the possibility that your idea infringes on someone else's existing patent. You can do some basic research of your own on the U.S. patent office website: [www.uspto.gov](http://www.uspto.gov). If you're really serious, talk to a patent attorney about their services.

## **Non-disclosure agreements**

NDA's help protect your idea from being copied by the vendors (product designers, manufacturers, sales rep's, buyers, etc.) that you show your idea to while trying to get it produced. The NDA says the vendor has to keep your product information confidential, keeping it from being spread around for everyone to see. Before you show your idea to a prospective vendor, ask them to sign an NDA (provided by you). You can find standard NDA's on the internet, in books at the library, or pay an attorney to draft a custom one for you.

## **Product Design**

Before a manufacturer will talk to you seriously about making parts for you, you need to design the product to be manufactured. Most manufacturers don't want to get involved in product design because there are too many questions to be answered. They're not about to take responsibility for molding 20,000 of your cool new widget with only a napkin sketch to work from. They're in the business of making parts, not designing them. Manufacturers require 3-D CAD files and detailed part drawings showing exactly what each part looks like and how it goes together. That's where product design, and product design firms, come in.

A good product design firm will help you answer all the questions about what your product should look like, how it feels in the consumer's hand, what it's made of, how it can be made less expensive, etc. The final deliverables of the product design process are usually a working prototype, the associated 3-D CAD files, and all the documentation needed to manufacture the product.

Keep in mind that product development is always an evolutionary process. Very seldom, if ever, does a design drawn on paper work exactly the way you want it to the first time out. Something may not "feel right" in your hand, or you might learn that the product doesn't function properly under certain unforeseen conditions. Be prepared to make changes and try again. Several rounds of prototypes may be needed before you're happy with the solution. Thomas Edison didn't just choose one filament material and instantly have a reliable lightbulb.

## **Prototypes**

A prototype is a model of your product that is used to test the functionality of your design before production tooling is started. It is usually made in a manner much different from what will be used to manufacture production quantities of your product. You want to prototype your design before spending all that cash on production tooling, because production tooling can be very, very expensive to change. Good, functional prototypes can cost hundreds or even thousands of dollars. Prototypes can also be used in your sales pitch to prospective buyers for the product.

## **Graphic Design**

Packaging artwork, instruction booklets, websites and sales literature are items that a graphic designer can help you with. These are usually worked on in tandem with the development of the product itself.

## **Production Tooling**

"Production tooling" is the array of molds and fixtures used to make the individual parts of your product. Depending on the product, production tooling can cost from hundreds of dollars on up to millions of dollars. Usually, the more money you spend on tooling, the lower the manufactured cost of your product. There is always a way to manufacture a product with lower upfront tooling costs, but it just means you're trading upfront costs for a much higher final part cost.

## **Manufacturing**

Molding the parts, assembling and packaging. Many manufacturers require a hefty minimum quantity order, and a percentage of the total order price up front. The remainder is usually due before the product leaves the factory.

Packaging design can be very important if you have a fragile product. It also has a huge affect on how your product is perceived by the consumer at the store.

## **Made in the USA vs. Overseas**

Everyone would like to be able to say their product is made in the USA, but the majority of consumer products are made overseas for a reason – price. It's difficult to compete with labor costs that are only a small fraction of ours. The state of the world economy has tipped the scales a little more towards America's favor the past few years, but it's still tough to compete when price on the store shelves is such a big factor in the consumer's buying decision. A set of molds made in the US for \$50,000 might cost \$20,000 in China. And a product that costs \$3.00 to assemble and package in the US might be \$1.25 overseas. Shipping costs, lead times, the language barrier, quality control, and customs headaches are very big factors to consider before jumping on the first low bid you see from an overseas manufacturer. There are, however, many manufacturers in the US that have overseas resources. Using someone like this can provide you with an American manufacturing contact, with the benefits of overseas pricing.

Keep in mind that products are shipped from overseas in shipping containers – the big, dirty metal boxes you see semi-trucks pulling around all the time. The cost to ship one of those is about the same whether it contains just 25 coffee mugs or 25,000 folding chairs. So manufacturers want them full before they leave China. The size of the shipping container must be taken into account when designing large products, as well as how many small parts will fit on a pallet inside that container.

## **Product Testing, Certification and Liability**

Does your product need to be certified by any governing body? Underwriters Laboratory? FDA? NSF? Certification can be a very long and expensive process.

Have you tested your product to be safe? What if someone is hurt using your product?

## **Marketing and Sales**

Who's going to sell your product for you? Do you have a foot in the door at Walmart or Target?! Very few people do. Just because you have the greatest product sitting in a warehouse ready to be shipped doesn't mean people are lining up to buy it.

## **Distribution**

Where will you put the 50,000 widgets that just pulled up in a semi? Who's going to make sure they all get to the 300 different stores that ordered them?

## **Financing**

There are investors to be found for just about any idea. They will most certainly want a large percentage of your profits – because you know you couldn't have done it without them.

### **Doing It Yourself vs. Paying a Professional**

Be realistic with your limitations when it comes to deciding what you can do on your own and what you're willing to pay someone to do. An experienced professional in any of the above areas can help you avoid numerous costly mistakes. But be sure to shop around for each of those professionals. Prices for their services vary just as much as their level of experience.

When looking at any quotes be sure that the vendor has listed exactly what is included and what is not, to reduce the chance of misunderstandings and finger pointing. If a quote does not have a lot of specific detail to it, it's usually an indication you should steer clear of that vendor.