

Describe what your invention does in one or more action phrases.

(e.g. ‘helps clean the floor’, ‘saves water in a space station’)

It’s important to separate what your invention does from how it does it. This allows it to be easily categorized with other products that do the same thing. For instance, a rag, a broom and a vacuum cleaner might all be described by ‘helps clean the floor’, but each performs the action in a different way. Each has its advantages but makes sacrifices, the rag is the cheapest but requires the most effort, the broom allows one to clean standing up but usually misses some dust, and the vacuum cleaner is the easiest to use but is also the most expensive. By categorizing these inventions by function, we can put them in context with each other. Now we can evaluate the rag as a floor cleaning device, and see its merits in relation to other floor cleaning devices.

Does your invention solve a specific problem? If so, describe the problem it solves.

(e.g. ‘dishwashers use more energy than they should’, ‘people lose their keys a lot’)

Inventions that solve common problems in an expedient way can be very successful. We can estimate an invention’s potential value by looking not just at how well it solves a problem but at what kind of problem it solves. Some problems are severe enough that people will spend any amount of money or effort to solve them, while others are merely minor annoyances that people are willing to put up with. If your invention is a practical solution to a real problem, then it is useful, and therefore valuable. However, inventions can also be valuable without really being useful at all. For instance, wind chimes, romance novels, and dart guns are all valuable (people make and sell them after all) but not very useful in a practical sense. If we were to describe the problems these products solve, we might say things like ‘the world is not beautiful enough’, ‘everyone could use a little more romance’, or ‘people want new and exciting things to do with their free time’.

What are the requirements on your invention? Mark with an * any of these which are not satisfied by similar existing products.

(e.g. ‘weighs under a pound’, ‘costs less than \$5’, ‘withstands 300 degree heat’)

It’s important to look at what criteria your invention really needs to meet, because this lets you know how you might be able to change it without affecting how well it does its job. You may have very specific ideas about your product, but thinking about what it really has to do might open up some new possibilities. Let’s say you have a deck chair that you want made in stainless steel, but when you list your requirements you notice that aluminum would do just as well, and would reduce the cost considerably. Make sure each requirement on your list is as general as possible; avoid things like ‘must be made from stainless steel’ in favor of things like ‘must last for a long time outdoors’ or ‘must have a high quality appearance’. Make sure you can give a good reason for each of your requirements, like ‘safety regulations require it’, ‘the product must be affordable to third-world farmers’, or ‘the product must command a high price in specialty shops’. It’s also useful to look at which of these requirements are not satisfied by similar products on the market, since these are the things that will differentiate your product from others like it. It may be that your product meets some requirement that’s never been met before, or it may satisfy a particular combination of requirements that no others do. In either case, this may be the reason that someone would buy your product instead of someone else’s.

If your invention solves a specific problem, what are the alternative solutions to that problem? If not, are there any existing products similar to yours?

If a problem is common, most of the time there are already some solutions to it. Some or all of these solutions might be unsatisfactory in one way or another, and they might not be based on products at all. Your product may be solving a problem where the only previous solution was to jury-rig something with two-by-fours and duct-tape, but it's very important to note the alternative solutions. When your product goes to market, those other options will likely still be available to people, and people may choose them even if your product is superior in some way. After all, two-by-fours and duct-tape are cheap and can be had from any hardware store, and while your product might be much more reliable, it might also be more expensive and more difficult to find. Knowing what other alternatives are out there will give you a better idea of where your product could be improved to make it more competitive. Also, similar products can give you a lot of useful information about the future of your product. For instance, if your invention is just like another product but with a few extra features, and that product costs \$20 at the store, you would know that your product might sell for around \$20 or a little bit more. Huge changes often occur in small increments, so don't worry if there's something a lot like your invention already being sold; yours just has to be a little bit better.

What advantages does your product have in comparison to the products or solutions above?

(e.g. 'works faster', 'uses less energy', 'cheaper')

This is what will make your product competitive with the alternatives.

What disadvantages does it have?

(e.g. 'heavier', 'needs batteries', 'requires training to use')

No solution is without its disadvantages. As they say about food, 'fast, cheap, good – pick any two', or about bicycles 'lightweight, cheap, durable – pick any two'. Problem solving involves compromises, and it's important to know where the compromises have been made so we can predict how customers will react. For instance, if all the good looking speakers on the market are made for audiophiles, a good looking set of speakers with lower sound quality might be much cheaper to make. Even though sound quality is compromised, the compromise might be acceptable to customers, and they will buy your speakers because they are cheaper. Knowing what the disadvantages are, and how much they are outweighed by the advantages, can help you predict the success of your idea.

What companies, if any, make products similar to yours?

It's good business to know who's already doing what you want to be doing. You might end up having any of several relationships with these people; you could compete with them, go to work for them, sell your idea to them, collaborate with them, or buy products from them to modify and resell. Knowing these companies will also give you a better picture of the market you're about to enter. Are all the products on the market made by big companies? Maybe there's a reason for that. Have a lot of companies struggled to get into the market and failed? Find out why they failed, what challenges they faced. Instead of seeing this as a list of people to beat, you can see it as a list of key resources.

How much do you expect to sell your product for? How much do similar products sell for?

One way to find out how much it might cost to make something is to look at the price tag of a similar product in a store. You can be sure that the store price is higher than the original cost of the item, since the store has to pay to transport, stock, inventory, and sell the item as well as make some profit. However, this gives you a rough idea of price range, and you can easily differentiate between things that cost \$1, \$10, \$100, or \$1,000 to make. The cost of related products can also be important. For instance, few people are going to buy a \$100 accessory for an item that only costs \$10. This can let you know whether the price you expect to sell your product at is a reasonable one. However, there are a huge number of factors that make the difference between cheap things and expensive things. Fluctuations in prices for raw materials, how many items are made per year, the demand for an item, and where the item is made are just a few of these factors. Realize that you might face a totally different situation, for better or for worse.

How many of your product do you expect to sell each year? How many similar products are sold each year?

The number of sales has a huge effect on the cost of an item, generally the more items you can sell, the cheaper you can make them for. This effect, called economy of scale, happens because there are a lot of costs which stay the same whether you make 10 or 10,000 items. The more items you make, the more this cost is spread out, and the cheaper each item becomes. There's a tremendous difference between making a few jumbo jets every year and making millions of plastic novelty items. Accurately predicting how many of a product you can sell requires a lot of knowledge and in-depth research, but making a rough estimate is not so hard. Just ask yourself whether it might be 10, 100, 1,000, 10,000, etc. You could also estimate a range, with your most pessimistic estimate at the low end and your most optimistic one at the high end.

Describe a typical user of your product. Is the person who pays for it a different person? If so, describe the typical person who would pay for your product.

It's important to know who's going to be using your product because you need to make it fit them well. Your user needs to find the product affordable, attractive, and easy to use. If your user makes money using your product, functionality is really going to count, and a higher price is justified. If your product is used to furnish or decorate, you need to make sure it fits with the user's tastes. Sometimes the person who uses the product is not the person who pays for it. For example, children use toys, but their parents pay for them, and surgeons use surgical tools, but the hospital buys them. In cases like this, you need to also make the product attractive to the buyer. It's not enough to make a toy that kids love, parents also have to approve of it. In fact it's good to know all the stakeholders in your product, all the people who interact with it at various points. This includes the factory workers who make it, the store owners and salespeople who sell it, the person who buys it, the person who uses it, and the person who disposes of it, reuses it, or recycles it. Sometimes design decisions can be made which will improve the lives of all these people, other times you might have to make some sacrifices, but it always pays to understand these people's viewpoints. One of the best ways to do this is to talk to these people; most people enjoy talking about what they know. This can give you a much deeper insight into your product and help you make difficult decisions.

What are your goals for this invention?

Do you want it in stores by Christmas? Will you sell it in classy department stores in New York, from a booth at the local mall, over the internet, to friends?

Mark any of the following items that you already have with a check. Mark any that would like to have with an * and estimate your expected budget for that item if you can.

- sketches (a simple drawing of the invention)
- patent (official patent protection for your idea)
- visual model (a 3D model that shows how the invention might look)
- working model (a model that demonstrates that the invention will work)
- computer model (a computer representation of the invention, used for manufacturing)
- technical drawings (drawings that a shop can work from to produce your product)
- renderings (a computer generated image of how your product will look)
- prototype (something close to or identical to the final product)
- production run (many copies of the product to sell)
- product photographs (professional photographs of the product to use in marketing it)

Tell us anything else you'd like us to know.

We're always trying to improve this questionnaire, so tell us the answers to the questions we didn't ask.

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