INDIEGOGO.

Hardware
Handbook

Contents

Introduction

In the past few years, crowdfunding has offered companies and entrepreneurs an amazing opportunity to bring new products to market. We've seen an explosion of new ideas, many of which would never have come to fruition otherwise. However, not everything has changed in the hardware world.

Manufacturing is still an arduous journey. It often takes established companies one to two years to bring a product to market—even with a dedicated team of experienced professionals. It's no wonder, then, that small teams with fixed budgets and compressed timelines sometimes struggle after a successful crowdfunding campaign.

Indiegogo has created the Hardware Handbook addressing this challenge: What makes manufacturing so difficult and how can you prepare for successful production? Inside you're find a wealth of information on prototyping, finding a contract manufacturer, coordinating fulfillment, and much more.

Be advised that we offer these tips only as general lessons we've learned along the way. Before making any important decisions, you should independently conduct thorough research using additional resources. Indiegogo and its affiliates are not liable for any decisions you make in reliance on the information we have presented.

Special thanks to Adam Ellsworth, without whom this would not have been possible.

Worksheet (1/5)

PROTOTYPING

Before you bring your product to market, you'll go through several phases of prototypes. These will include:

- Works like prototype (pre-campaign)
- Looks like prototype (pre-campaign)
- Design for manufacturing (DFM) prototype (ideally pre-campaign)
- Unit off the assembly line (most likely post campaign)

The reason for having your first two levels of prototype pre-campaign is to prove to yourself and your contributors that you can build at least one of your product. This will also allow you to show off your product in-person, which is essential to building buzz and getting press features: many publications will only write about your product if they can hold it and use it.

If possible, complete a DFM prototype before your campaign. The techniques used for large scale manufacturing are often radically different than those used for your first several prototypes. Completing a DFM prototype early will ensure that you can make thousands of units for your contributors, and can help you avoid costly delays in the manufacturing process.

SETTING YOUR TIMELINE

While you should include a delivery date for your crowdfunded product, make sure that this date is accurate based on information you've received from your manufacturer. Talk to manufacturers about different aspects of your product, and find out how long it would take them to make it. They will often give you an "ideal" estimate, so make sure to multiply by 2-3 times. Better to under-promise and over-deliver rather than disappoint your customers just as you're launching your business.

A great way to get organized is with a Gantt chart, a type of bar chart that illustrates your project schedule. This allows you to see everything on one page and how it links together. There are many templates you can download to use in Google Docs or Excel.

- Talk to manufacturers about each element of your product
- Figure out which parts rely on another part being complete
- Multiply estimations by 2-3 times
- Set up a Gantt chart with every stage of your product
- Make sure to include time for shipping

Worksheet (2/5)

PRICING YOUR PRODUCT

There are two common approaches to pricing your product, top-down and bottom-up.

Bottom-up means you are figuring out your cost of goods (COGs) and multiplying by a factor (usually at least 3X higher). Cost of goods include:

- Components
- Assembly cost
- Packaging (can be pricey)
- Cost of shipping goods to your warehouse (per unit)
- Warehousing costs (per unit)
- Multiply by a factor (3X or more)

Top-down means you are figuring out the value of your product first, or what people would be willing to pay for it. This can be done through:

- Comparison to similar products
- In person market research
- Online A/B testing (test market interest for your product at different prices)

In either case, you need to make sure you are at least 3X your COGs. It's a good idea to use both approaches when determining your price.

SETTING YOUR CAMPAIGN GOAL

Your costs are going to be much higher than just your COGs. There are many fixed costs that will be associated with your product. These might be:

- Tooling (injection molds or similar expensive tools)
- Flights/Travel (if you are going overseas, consider at least two flights, if not more)
- Prototyping costs
- Campaign costs (videography, product photography, marketing)
- Salary (what can you and your team afford to live on?)
- Shipping out to your contributors
- Add your COGs multiplied by your minimum order quantity (MOQ)

Make a spreadsheet and add up everything and make sure you'll have enough money to fulfill. Ensure that there's a large buffer (25%-50% at least) to cover unforeseen costs during the manufacturing process, but don't set your goal higher than this number. While it can be tempting to set an ambitious goal, we always recommend setting the lowest goal that will let you move forward with your product and fulfill on time, as high goals can deter contributors.

Worksheet (3/5)

FINDING A MANUFACTURER

There is no surefire way to find the right manufacturer. You'll need to research your available options and speak with people who have made a product and ask for recommendations. Some of your different options include:

- Working directly with a supplier (lower cost, higher risk)
- Working with a contract manufacturer (CM) or sourcing group (higher cost, lower risk)

In either case, make lots of phone calls, and don't forget to check with your CM about minimum order quantities (MOQ) for volume, pricing, and discounts There are plenty of CMs based in the US, and this is likely the best option your first product. They will minimize risk, and often save you money in the long-run.

You should choose your manufacturer before you launch your campaign, as this will give you access to the pricing, timing, and logistics information you'll need to accurately price your product. Make sure you go with a contract manufacturer you trust: you're entrusting them the future of your business.

WHERE TO MANUFACTURE

Potentially US if:

- Your first order is small
- Uses mostly off-the-shelf parts
- The price of your product is on the higher side
- Your product is made of one or two materials (especially wood)

Potentially abroad if:

- Your first order is large
- You need many custom parts
- Requires a lot of assembly
- Can be shipped overseas easily
- You should consider both before launching your campaign, and do a cost analysis for both options.

DETERMINING YOUR ORDER SIZE

You will probably want to produce more than just enough units to fulfill to your campaign contributors. Ideally you will build up an inventory to sell directly to consumers or through wholesale. This is one of the most important reasons to have a high margin built into the price of your product. These excess funds will allow you to invest in your inventory and help you to build a sustainable business once your campaign has ended. To calculate your order size:

- Take your campaign earnings
- Subtract fixed costs (including shipping to your contributors)
- Subtract a buffer (this is in case anything goes wrong)
- Divide by your COGs to figure out the # of units you can produce
- Do this exercise ahead of time with different levels of successful campaigns (E.G. your exact goal, 2X your goal, 5X your goal)

Worksheet (4/5)

STICKING TO YOUR TIMELINE

Prepare early. Your timeline may not change dramatically depending on the volume of your order, so get as much done as you can before the campaign:

- Build a Gantt chart with your manufacturer
- Make sure you both understand all the deadlines
- If anything slips, address it, and try to understand why, so that you can avoid missteps moving forward
- Remember that nothing will go perfectly, so leave plenty of breathing room
- Promise a later delivery to your contributors, and aim to fulfill early

STICKING TO YOUR BUDGET

Again, preparation is your best friend:

- Make sure you get quotes for everything ahead of time
- Add a safety buffer to your COGs (it may increase 25%-50% as issues arise)
- Leave budget for extra travel and other fixed costs
- Always use a spreadsheet, and update it as changes happen

Also, make sure you get a sample of every part before you put in a full order. You want to make any adjustments necessary before you start production.

FULFILLMENT

Depending on your order size, you may decide to fulfill yourself or use a fulfillment service. In either case, you will have to pay for postage, so factor this cost into your campaign. Fulfillment services will often charge $2-$4 per unit to package your goods and ship them out. You can save money by doing it yourself, but it can be a big headache. In either case, do research ahead of time:

- Create a spreadsheet to track the status of every item shipped
- Check prices on USPS, Fed-EX, and UPS based on the weight and size of your product
- Get quotes from fulfillment services (search for a few and talk to them)
- Ask for a reference from someone who has completed a successful campaign
- Check out Stamps.com or Endicia if you're interested in fulfilling yourself
- Consider that you may want to change fulfillment methods if your campaign exceeds its goal and you have a much larger order

Worksheet (5/5)

CERTIFICATION

Many products coming onto the market today will require certification. The three most common are FCC, UL, and CE. You will need:

- FCC if your product emits unintentional signal (anything with a microchip)
- FCC if your product emits intentional signal (wifi, Bluetooth, cell)
- UL if your product plugs into the wall, or has any injury potential
- CE if you want to sell your product in Europe

The simplest level of FCC certification is about $2,000 (this is for unintentional signal). You can go to FCC.gov to find locations near you. They will also be able to do CE certification. UL certification, and more advanced certification are much more expensive. Use pre-certified parts whenever possible to avoid a lengthy and costly process. Find out your costs ahead of time. Certification can be very expensive!

Check with intended retailer channels where you want to sell, as their requirements may be different. Use pre-certified parts whenever possible to avoid a lengthy and costly process. Also remember to find out your costs ahead of time. Certification can be very expensive, and certification costs vary by country.

Tips for building a sustainable business

AUTOMATE FULFILLMENT

As your business grows, you will want to make sure that you're not worrying about putting shipping labels on boxes. Make sure transfer to an automated solution, whether that means hiring a team, or working with a fulfillment service. In the long run, you want orders to go out automatically, and wholesale to ship out with the push of a button.

E-COMMERCE TO WHOLESALE

You will often start with selling your product on your own website. You can quickly and easily move to a larger platform like Amazon, which will take a cut, but give you wider exposure. Pretty soon, however, you'll want to make larger sales to wholesalers. They will purchase in bulk, by require up to a 50% price cut. Make sure your margins can afford this! Start talking to potential wholesalers early, and find out their requirements.

MARKETING

A sustainable business is as much about building a brand as selling your products. Consider marketing approaches such as buying ad space. With online advertising, this can be done on a fairly tight budget. Viral campaigns are also fantastic, so be creative!

BUILD A PRODUCT LINE

No matter how cool your product is, it probably won't sell forever. The lifecycle of most consumer products is one to two years. So start thinking about your next product early! Create a spreadsheet to collect requested product feature feedback from your contributors. This can help inform the development of your next product. Once you've set up a supply chain and a brand, the next product will likely be much easier to bring to market.

Checklist (1/3)

PROTOTYPING

- [ ] Works like prototype (pre-campaign)
- [ ] Looks like prototype (pre-campaign)
- [ ] Design for manufacturing (DFM) prototype (ideally pre-campaign)
- [ ] Unit off the assembly line (most likely post campaign)

SETTING YOUR TIMELINE

- [ ] Talk to manufacturers about each element of your product
- [ ] Figure out which parts rely on another part being complete
- [ ] Multiply estimations by 2-3 times
- [ ] Set up a Gantt chart with every stage of your product
- [ ] Make sure to include time for shipping

Pricing your product

BOTTOM-UP – COGS X3 OR MORE

- [ ] Components
- [ ] Assembly cost
- [ ] Packaging (can be pricey)
- [ ] Cost of shipping goods to your warehouse (per unit)
- [ ] Warehousing costs (per unit)
- [ ] Multiply by a factor (3X or more)

TOP-DOWN

- [ ] Compare to similar products
- [ ] In person market research
- [ ] Online A/B testing (test market interest for your product at different prices)
- [ ] Err on the high side! You'll really want the margin

Checklist (2/3)

Setting your Campaign Goal

ADD UP THE FOLLOWING

☐ Tooling (injection molds or similar expensive tools)

☐ Flights/Travel (if you are going overseas, consider at least two flights, if not more)

☐ Prototyping costs

☐ Campaign costs (videography, product photography, marketing)

☐ Salary (what can you and your team afford to live on?)

☐ Shipping out to your backers

☐ Add your COGs multiplied by your minimum order quantity (MOQ)

☐ Add a buffer of 25%-50%

FINDING A MANUFACTURER

☐ Ask friends or mentors for recommendations!

☐ Working directly with a supplier (lower cost, higher risk)

☐ Working with a contract manufacturer (CM) or sourcing group (higher cost, lower risk)

☐ In either case, make lots of phone calls. Get to know them!

Where to Manufacture

POTENTIALLY US IF:

☐ Your first order is small

☐ Uses mostly off-the-shelf parts

☐ The price of your product is on the higher side

☐ Your product is made of one or two materials (especially wood)

POTENTIALLY ABROAD IF:

☐ Your first order is large

☐ You need many custom parts

☐ Requires a lot of assembly

☐ Can be shipped overseas easily

DETERMINING YOUR ORDER SIZE

☐ Start with your campaign earnings

☐ Subtract fixed costs (including shipping to your backers)

☐ Subtract a buffer (this is in case anything goes wrong)

☐ Divide by your COGs to figure out the # of units you can produce

☐ Do this exercise ahead of time with different levels of successful campaigns (E.G. your exact goal, 2X your goal, 5X your goal)

Checklist (3/3)

STICKING TO YOUR TIMELINE

- [ ] Build a Gantt chart with your manufacturer
- [ ] Make sure you both understand all the deadlines
- [ ] If anything slips, address it, and try to understand why, so that you can avoid missteps moving forward
- [ ] Remember that nothing will go perfectly, so leave plenty of breathing room
- [ ] Try to promise a later delivery to your backers, and then aim to fulfill early

STICKING TO YOUR BUDGET

- [ ] Make sure you get quotes for everything ahead of time
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- [ ] Always use a spreadsheet, and update it as changes happen

FULFILLMENT

- [ ] Check prices on USPS, Fed-EX, and UPS based on the weight and size of your product
- [ ] Get quotes from fulfillment services (search for a few and talk to them)
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CERTIFICATION

- [ ] FCC if your product emits unintentional signal (anything with a microchip)
- [ ] FCC if your product emits intentional signal (wifi, Bluetooth, cell)
- [ ] UL if your product plugs into the wall, or has any injury potential
- [ ] CE if you want to sell your product in Europe

Crowdfunding Tips (1/3)

START WITH A WHISPER, THEN END WITH A BANG

Reach out to your close contacts and lock down a base of funding before you launch your campaign. When you launch your campaign, only share it with these pre-campaign contacts and make sure to stress the importance of contributing right away. You can even have unique perks or lower pricing on your first day to encourage early contributions.

If you build this base of funding from your pre-campaign contacts, strangers send in from press features, paid ads, or other outreach will be directed to a campaign that has momentum and a base of funding, making them much more likely to contribute. This is especially important with hardware campaigns, as strangers may doubt your campaign's product unless they can see that others already trust you. It's all about validation!

SHOW USE-CASES

You may be tempted to show off the amazing technology behind your product, which is great! Just remember that most people are more interested in the story of how your product will impact their life. Be sure to highlight use-cases and show contributors how the product will improve their lives. Give concrete examples showing how your product solves a specific problem.

BE READY FOR SUCCESS AND LIMIT YOUR RISK

Can you scale if your campaign goes viral? If there's a limit on how many of a specific perk you're able to fulfill, build that limit into your campaign.

GET COZY WITH PAYPAL BEFORE YOU LAUNCH

If you're going to use PayPal as a payment processor, contact them before you launch and let them know you're going to be running a crowdfunding campaign. If your PayPal account's transaction volume goes from nothing to tens of thousands of dollars daily it may set off one of PayPal's Risk Algorithms and lead them to temporarily block payments to your campaign.

PayPal also has a regulation that any pre-orders must be fulfilled within 30 days, so work with them to remove the phrase "pre-order" and similar language so they can clear your campaign before you launch. If you plan to receive over 200 contributions or $20,000, make sure you've provided PayPal with your Tax Identification Number, as they will require this information.

KNOW HOW TO SHIP EVERYWHERE

Indiegogo is an international platform, and if you have a hit product, people from around the globe will want it. Find out what it costs to ship internationally, look into customs issues, and know what to charge international users for shipping.

HAVE A FRAMEWORK TO COMMUNICATE WITH CONTRIBUTORS

How you manage the questions and concerns of your contributors will influence how your organization is perceived. Include a contact email address on your campaign page and have someone on your team ready to answer questions, manage contributor problems, and ensure that contributors are happy with your product. This is especially important after your campaign ends. Frequent communication can prevent contributor resentment if there are any delays in the production process, and keeping your contributors happy and informed will go a long way in building brand loyalty.

Crowdfunding Tips (2/3)

BE OPEN TO CHANGE

Even with a well-designed product, sometimes your audience wants something you didn't think of, whether that's a different color, a car-adapter, or a Dutch Language version. With your Indiegogo campaign, you'll have a wide and invested audience eager to offer feedback, and real-time market testing is one of the primary benefits to launching your product through a crowdfunding platform. Be open to making changes to your product and think about what questions you'd like to ask the crowd.

Furthermore, involving your audience in this way makes them feel like your project is their project too; they didn't just contribute to your campaign, they helped you create something new. This is extremely powerful, as people who feel this way will share your campaign as if it were their own.

KNOW YOUR GOALS

Are you trying produce a one-off product or start a business? Hoping to attract the attention of distributors? Hoping to get bought by a larger company? Gauging market interest and soliciting user feedback? Know what you're looking for beyond funding so you can focus your campaign strategy on achieving these goals as well.

HAVE A PROTOTYPE

You don't need a prototype to use Indiegogo, but press will often want to review and use a product before they write about it. You may lose potential PR coverage if you don't have a prototype available for review. Having a prototype you can show in your video also helps to build contributor trust. This is especially important if your product is offering new, cutting edge technology or offering existing technology at a radically lower price point. Such products may seem too good to be true to potential contributors, and a prototype can allay these concerns.

Crowdfunding Tips (3/3)

FIXED VS. FLEXIBLE FUNDING

Many product campaigns choose to use Fixed Funding out of necessity: If you are unable to move your project forward or fulfill your perks without the full amount raised, you should choose Fixed Funding. However, if you're able to fulfill perks without meeting a specific funding goal or have access to other sources of funds outside of Indiegogo, you may consider Flexible Funding. With Fixed Funding, you're only able to accept funds through PayPal; Flexible Funding allows you to accept funds through both PayPal and Direct Credit Card. You can learn more about the difference between Fixed and Flexible Funding on our website's Help Center.

CUTTING EDGE? LO-FI IS YOUR FRIEND

Campaigns funding cutting-edge technology will likely encounter skepticism from users. Remember that if you've made something unique, you may need to put extra work into reassuring contributors that your product is real and works as described. Be as transparent as possible about how your new technology works, link to outside studies and press that confirm the fact, and include lo-fi shots of your product being used from a variety of angles. Building legitimacy in this way will help build users' trust that your amazing product is real, functional, and ready to go.

Additional Resources

Committed to Hardware: Indiegogo's Hardware Bootcamp

This blog post contains video and other content from Indiegogo's Hardware Bootcamp, where we brought together industry experts to help hardware startups better understand the product development and manufacturing process.

Indiegogo's Crowdfunding Field Guide

Whether you're running a campaign or just interested in learning more about crowdfunding, this field guide is packed with tips, tricks, and resources to help make your ideas come to life.

Indiegogo Blog: Online Resources for Marketing Your Crowdfunding Campaign

This blog post contains a guide to different online resources for marketing your crowdfunding campaign.

Indiegogo Blog: Online Resources for Managing Your Campaign

This blog post contains a guide to different online resources for managing your crowdfunding campaign.

Campaign Strategy Office Hours

Sign up to discuss hardware campaign strategy with Ben Bateman, Indiegogo's Campaign Specialist in Hardware, Design, and Technology.

Indiegogo's Hardware Mailing List

Click above to join Indiegogo's Hardware Mailing List to stay updated about new hardware and crowdfunding resources available through Indiegogo.