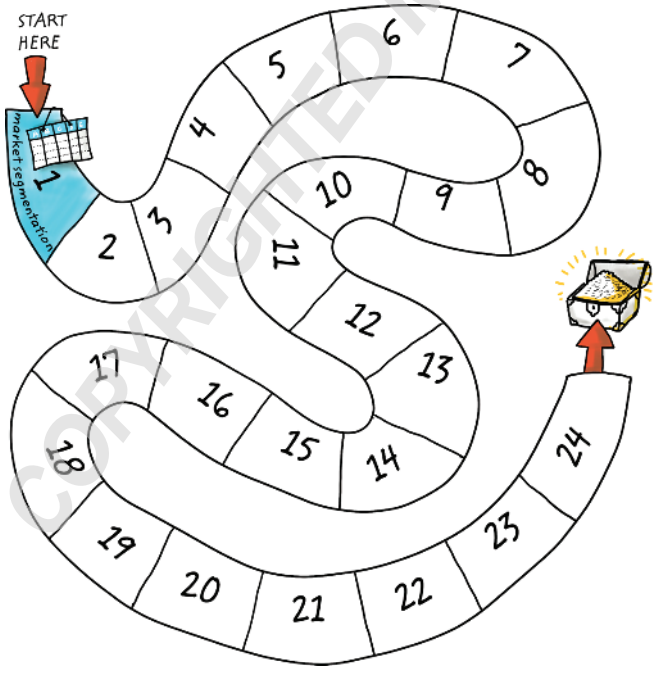
STEP 1

Market Segmentation



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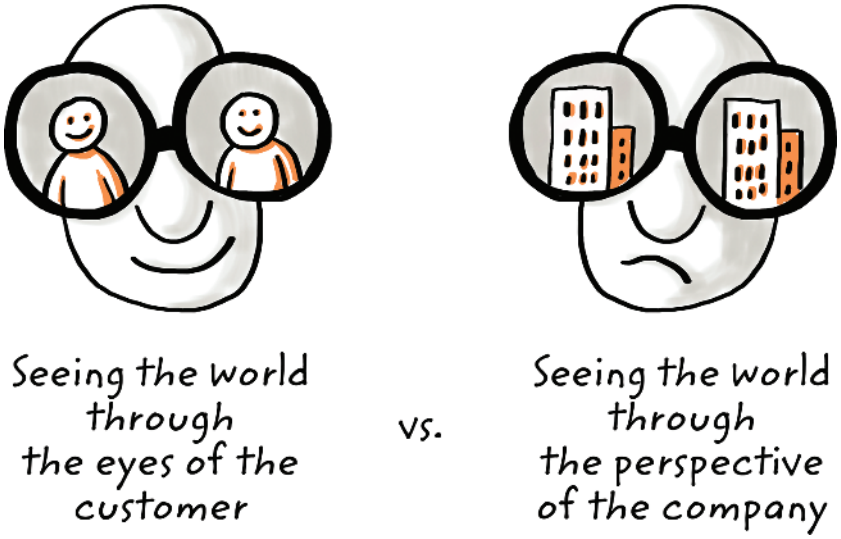
IN THIS STEP, YOU WILL:

- Brainstorm a wide array of potential customers and markets for your business.
- Narrow your list down to your top 6–12 markets.
- Gather primary market research on your top 6–12 markets.



For success in entrepreneurship, there are some glasses that are better than others to view the situation.

Once you have completed Step 0, Getting Started, you should have an idea or technology that answers the question, "Is this something the world could benefit from, and is it something I do well and would love to do for an extended period?" You should also have a team of co-founders. (Throughout the 24 Steps, I will use "you" to refer collectively to your team.)

Now you will begin the 24 Steps by taking that idea or technology and brainstorming a wide array of potential customers who might be interested in some application of it. Then you will choose 6–12 top opportunities and do in-depth primary market research, where you directly interview potential customers to learn more about them.

THE SINGLE NECESSARY AND SUFFICIENT CONDITION FOR A BUSINESS

Regardless of your business, you must ask yourself, "What is the single necessary and sufficient condition for a business?" It is not a product, a technology, a customer need, a business plan, a vision, a strong team, a CEO, money, investors, competitive advantage, or company values. While all those are great things for a business to have, none of them is the right answer.

The single necessary and sufficient condition for a business is **a paying customer**.

The day someone pays you money for your product or service, you have a business, and not a day before. This simple truth will keep you focused on what is important. You cannot define a business as a product, because if nobody buys your product, you simply do not have a business. The marketplace is the final arbiter of success.

Now, just because you have a paying customer does not mean you have a *good* business. In order to have a good, sustainable business, you will need to gain enough customers paying enough money within a relatively short period of time so you do not run out of capital, but instead, become profitable. And as a startup, you have few resources, so every action you take must be hyper-efficient.

Therefore, you will not start by building a product or hiring developers or recruiting salespeople. Instead, you will take a customer-driven approach by finding an unmet need and building your business around it.

CREATE A NEW MARKET THAT YOU WILL DOMINATE

Creating an innovative product where no market currently exists is essential to the success of a startup. By creating a new market, you will have a very high, if not dominant, market share that you

can use as a basis for future expansion. Being a "me-too" company in an existing market is a more difficult proposition given your limited resources.

To create this company in a newly defined market space, you will focus on a target customer. A target customer is a group of potential customers who share many characteristics and who would all have similar reasons to buy a particular product. Focus is the most important skill for an entrepreneur, and as you will find throughout these steps, it is difficult to focus too much. You must work hard to identify and understand customers through primary market research, because relying on "educated assumptions" or third-party analysis is guesswork when you are creating new markets.

Once you have established a foothold within that target group, meaning that you've provided that group with a substantially superior product and they are paying you for it, you will have enough resources to expand to an adjacent market. In an adjacent market, some customer characteristics will be the same as your primary market, but there will be enough differences to require tailoring your strategy appropriately. That process is covered in Steps 14 and 24.

WHEN "PAYING CUSTOMERS" LEAD YOU ASTRAY

While paying customers ultimately determine whether your product is successful, there are two common pitfalls you may encounter if you do not focus on creating a new market.

The first is "selling to everyone," which is the idea that you, as a fledgling startup with little to no resources, can make products that fit the needs of anyone you run across.

Let's say you have invented a new polymer that waterproofs fabric better than anything on the market. You first hear from your friend Sally, who read in the newspaper that camping equipment is a lucrative market, so she suggests you sell tents. Your cousin Joe chimes in; he wants waterproof underwear. A neighbor thinks that easy-to-clean stuffed animals for children would be just lovely.

To design and execute any of these products will take time and resources. If you start production on one product, and find there aren't enough customers to make your venture profitable, you almost certainly will not have the resources to keep making products until you find a profitable market.

The second common pitfall is "The China Syndrome," also known to my students as "fun with spreadsheets." Rather than create a new market, the thinking goes, one could choose a huge existing market, get a fraction of the market share, and reap the rewards. After all, if you could get even a tenth of a percent of the toothbrush market in China (population 1.3 billion), wouldn't you make a lot of money?

The logic would go something like this: "The Internet says China has over 1.3 billion people. If they all have teeth, the market size is 1.3 billion customers. I'll build a toothbrush for the Chinese market, and maybe we'll get 0.1 percent market share in the first year. If each person buys three

toothbrushes a year, we could sell 3.9 million toothbrushes per year, and if we sell them for $1 each, we have $3.9 million in sales the first year, with lots of room to grow."

I call such a high-level market analysis "fun with spreadsheets," because you have not demonstrated in a compelling manner why people would buy your product or why your market share would increase over time. You also have not validated any of your assumptions by learning directly from customers—you probably haven't even been to China. After all, if entrepreneurship were this easy, wouldn't everyone sell toothbrushes to China?

Big companies with lots of resources can afford to work hard to gain incremental market share, but entrepreneurs don't have the luxury of resources. Don't get ensnared by "The China Syndrome."

Take your resources and apply them to a narrow, carefully defined new market that you can dominate.

COMPLEX PAYING CUSTOMERS: PRIMARY VERSUS SECONDARY CUSTOMERS AND TWO-SIDED MARKETS

Thus far, I have used "customer" to refer to the entity—such as a household, organization, or individual—who pays for, acquires, and uses your product. Within the broad definition of a customer, there is the end user, who ultimately uses your product, and the economic buyer, who makes the final decision about whether to acquire the product. The end user and economic buyer can be the same person, depending on the situation. (I describe the various roles of a customer in more detail in Step 12, Determine the Customer's Decision-Making Unit [DMU].)

But there are two cases in which this definition gets more complicated. The first is when your business model calls for both primary customers (end users) and secondary customers (economic buyers) in order to make money. Often, these businesses are structured where the primary customer is charged at below cost, or gets a product for free, and a third party pays for access to the primary customer and/or the primary customer's information. For instance, Google's search engine is free to use, but Google sells advertisements on search results pages to make money. Google's ability to provide advertisers with keyword-targeted ad placement and demographic information about search users further enhances Google's value proposition to advertisers.

You likely will not have a primary/secondary customer delineation until you have completed Step 15, Design a Business Model, so for now, focus on your primary customer as you complete the first several steps.

The second case is called a two-sided or multi-sided market, where you need multiple target customers for your business to exist. eBay is a good example, because it needs both sellers and buyers (supply and demand) to participate in its auctions to be successful.

If you have a multi-sided market, you will complete each step once for each side of the market. But you will likely find through your primary market research that one side of the market is more critical to win for your business to succeed; so you will want to focus there. For instance, two of my former students, Kim Gordon and Shambhavi Kadam, started Mediuum, an iTunes-like platform for digital artwork. As they investigated this concept, they realized that getting the demand side of customers to sign up to put digital art on their mobile phones, tablets, PC, and TVs was not the challenge. The hard work was going to be signing up the digital artists who create the art and having them agree to make it available. Thus, while both supply and demand were needed for the new venture to succeed, their primary focus would be the digital artists.

HOW TO DO A MARKET SEGMENTATION

Step 1A: Brainstorm

Start by brainstorming a wide array of market opportunities. Include even the "crazy ideas" that you think are longshots, because they are helpful in expanding the boundaries of possibilities to where some of the most interesting opportunities might exist.

Even at this early stage, talking about your idea or technology with potential customers will give you clear and accurate feedback for your market segmentation. You will find them at trade shows, through connections with fellow students and professors (perhaps some of them would have been potential customers at their previous jobs), or, if others have heard about your idea or technology, perhaps they will be contacting you, suggesting potential uses. The best scenario is when you are the potential customer yourself and have a deep understanding of the problem you are trying to solve.

If you have an idea, you may think you already have a specific market and a specific application in mind. However, as a first-time entrepreneur, you will want to carefully determine whether your perceptions are correct. Likely, your defined market is not specific enough, but you may also find that the market you have in mind is not a good match for your idea, or that other markets are better for starting a business. Be open-minded and creative.

For instance, if you are expressing your idea as "I want to create an online social network for high school teachers and parents to communicate about their children's progress in school," you may lock yourself into a path that does not produce a sustainable business. Start instead with "I want to improve education with technology." Then ask yourself why you are passionate about that idea. If technology is your primary passion, you probably want to consider a wider range of industries than just education. If your passion is education, you can simply segment the education industry, but be open to other solutions besides one involving a high degree of technology.

If you have a new technology, you probably can think of a large number of industries that could benefit from your product. While you may have domain expertise in a certain field, that field may not have any good applications for your technology, so be open to different industries. Later on, you will filter your ideas to take your passions into account.

Start by identifying potential industries for your idea. Then, list who might benefit in each industry from your idea. Focus on end users, not customers, because you will need a committed group of end users to have a sustainable business. A school doesn't use a textbook, or a chalkboard, or a lesson plan, but teachers do.

For instance, if your idea is to improve education with technology, who would be your end user? Teachers, administrators, parents, and students are all potential end users. Each category can be further subdivided. Are you focusing on end users in universities or in grade school? What different types of schools are these end users associated with? Which countries and regions do the end users work and live in?

To elaborate on one example, in the grade school category for teachers, there are public school, private school, parochial school, and homeschool teachers. Within public school teachers, there are various levels of schooling, depending on their country and region. Within each category, there are urban, suburban, and rural schools. In most middle and high schools, teachers specialize in a specific subject. Even within a subject, such as social studies, there are subcategories such as history and geography. In most schools, there are art, music, and physical education teachers, as well as paraprofessionals and special education teachers. See Figure 1.1 for a visual example.

Next, identify the different tasks your end user performs. For a high school science teacher in a suburban area, these tasks may include teaching, grading, preparing lessons, training, discipline, dealing with parents, ordering chemicals, and more. An elementary school teacher in a major city may not need to order chemicals, but may need to buy classroom supplies, sometimes out of pocket. Also, an elementary school teacher likely teaches multiple subjects, so you would subdivide "teaching" by the different subjects.

You may find enough similarities between certain subcategories that you can group them, depending on what your idea is, but you will find that out during your primary market research. Do not start combining categories without knowing more about your customer.

Sometimes, my students have an easy time segmenting end users when starting with an employee like a teacher, but have a much harder time when the end user is a consumer, purchasing for personal or household use. A useful question to ask is why the consumer would purchase a product in a particular industry segment. For the education segmentation above, why would a parent purchase a product that improves education?

Or, consider a technology such as a long-lasting battery. If you are looking at the transportation industry, and have segmented down to consumers buying a vehicle for personal transportation, why would a consumer use such a product? Some possibilities include environmental conscientiousness,

Figure 1.1 When you segment out your market, you will find there are a lot of segments, and that seemingly broad categories have a lot of important differences. Segment first, and then determine whether any categories are common enough to merge.

high performance, luxury, convenience, and value. Even within high performance, you can subdivide between consumers looking for a low-cost but high-performance vehicle, and price-insensitive consumers whose primary objective is high performance.

Be broad and expansive when segmenting end users for your new product. You are brainstorming now; later, you will narrow the list as you start to analyze each segment.

Step 1B: Narrow

You have by now identified numerous potential end users and applications for your idea or technology. Your next task is to list the top 6–12 particularly interesting market opportunities, where a market opportunity consists of a specific end user and one or a handful of applications. As you do primary market research, the specific application you have in mind may not be one the end user is looking for, so it is better to focus on end users for now.

In *Inside the Tornado*, Geoffrey Moore identifies five criteria that the company Documentum used to narrow down its list of 80 potential markets. I have expanded this number to seven by splitting the first criterion into two parts, and adding one of my own to incorporate the passions of your founding team into the discussion.

1. **Is the target customer well-funded?** If the customer does not have money, the market is not attractive because it will not be sustainable and provide positive cash flow for the new venture to grow.
2. **Is the target customer readily accessible to your sales force?** You want to deal directly with customers when starting out, rather than rely on third parties to market and sell your product, because your product will go through iterations of improvement very rapidly, and direct customer feedback is an essential part of that process. Also, since your product is substantially new and never seen before (and potentially disruptive), third parties may not know how to be effective at creating demand for your product.
3. **Does the target customer have a compelling reason to buy?** Would the customer buy your product instead of another similar solution? Or, is the customer content with whatever solution is already being used? Remember that on many occasions, your primary competition will be the customer doing nothing.
4. **Can you today, with the help of partners, deliver a whole product?** The example here that I often use in class is that no one wants to buy a new alternator and install it in their car, even if the alternator is much better than what they currently have. They want to buy a car. That is, they want to buy a whole functional solution, not assemble one themselves. You will likely need to work with other vendors to deliver a solution that incorporates your product, which means that you will need to convince other manufacturers and distributors that your product is worth integrating into their workflows.
5. **Is there entrenched competition that could block you?** Rare is the case where no other competitors are vying to convince a customer to spend their budget on some product to meet the identified need. How strong are those competitors, from the customer's viewpoint (not your viewpoint or from a technical standpoint)? Can the competition block you from starting a business relationship with a customer? And how do you stand out from what your customer perceives as alternatives?
6. **If you win this segment, can you leverage it to enter additional segments?** If you dominate this market opportunity, are there adjacent opportunities where you can sell your product with only slight modifications to your product or your sales strategy? Or will you have to radically revise your product or sales strategy in order to take advantage of additional market opportunities? While you want to stay focused on your beachhead market, you do not want to choose a starting market from which you will have a hard time scaling your business. Geoffrey Moore uses the metaphor of a bowling alley, where the beachhead market is the lead pin, and dominating the beachhead market knocks down the lead pin, which crashes into other pins

that represent either adjacent market opportunities or different applications to sell to the customer in your beachhead market.

7. **Is the market consistent with the values, passions, and goals of the founding team?** You want to make sure that the founders' personal goals do not take a back seat to the other criteria presented here. In the case of a company I co-founded, SensAble Technologies, we wanted to "get liquid" (go public or get bought) within four to five years, a relatively short time horizon for the type of technology we created, because co-founders Thomas and Rhonda Massie wanted to move back to Kentucky, where they were from. Therefore, an important factor for us was whether we could show results in an acceptable time frame in whichever market we chose.

Start by asking these questions at an industry level. Then, consider what the answers would be for the end user of your product. Within an industry, if you have segmented your potential end users by branching out into many categories, like in the education example above, ask the questions at each branching level. For instance, consider the example from earlier of teachers vs. parents vs. administrators vs. students, then higher education vs. grade school, then country, then public vs. private, etc.

Your limiting factor is time—you will research each of these markets in depth, and you do not have time to consider an unlimited number of options. Six to twelve market opportunities is more than sufficient—with a realistic number being much closer to six than twelve.

Step 1C: Primary Market Research

Now that you have narrowed your market opportunities, it is time for primary market research, talking directly with customers and observing customers will help you get a better sense of which market opportunity is best.

Because you are identifying a new market opportunity for a product that does not yet exist, you will not be able to rely on Google searches or on research reports from research firms. *If there is already a market research report out there with all the information you need, it is probably too late for your new venture*. You have missed the window of opportunity—someone else has beaten you to the market.

Instead, you will gather the vast majority of your information from direct interaction with real potential customers about their situations, pain points, opportunities, and market information. Unfortunately, there are few shortcuts in this process. While you should find out what you can about customers and markets before you talk to potential customers, it is impossible to overstate the importance of doing direct customer research, as any other sources of information and knowledge are frequently superficial and likely of minimal value.

How to Talk with Potential Customers When you talk with potential customers, encourage the flow of ideas; don't restrain them or try to gain a commitment. If the potential customer senses you are trying to sell them something, they will change their behavior; they will either say little or say things that are related to the market opportunity you seem to be presenting them, rather than providing you with new, innovative ideas for markets. As a result, you will get less market data, and what you do get will be biased.

Likewise, you should not count on your customer to design your product or tell you the answer to their problems. The goal of this research is to understand their pain points, and later design a solution that will be of great value to them. To do so, you will need to thoroughly understand the underlying issues and sources of opportunity, whether by speaking with them or, even better, watching them as they work ("primary observational research"). Actions are more important than words, because people sometimes say things that are contrary to how they actually do things.

You will want to talk with as many end users as possible, but individuals who are not end users may also give you valuable advice or may point you in the right direction. You may even find that you misidentified the end user in your segmentation.

There are a few key factors that are integral to collecting accurate information:

- You must have a high level of intellectual curiosity.
- You must be fearless about getting on the phone, in the car, or on a plane to pursue this information.
- You must have an ability to listen and get people to talk.
- You must be open-minded and unbiased, and never presuppose a solution (inquiry, not advocacy).
- You must have the ability to explain what the essence of your proposed offering might look like while also being flexible.
- You must have time and patience to devote to this important step.

There are three important caveats when conducting your primary market research:

1. You do not have "the answer" for your potential customers and their needs.
2. Your potential customers do not have "the answer" for you.
3. Talk with potential customers in "inquiry" mode, not "advocacy/sales" mode. Listen to what they have to say, and don't try to get them to buy anything.

Organize Your Research The main categories you are trying to obtain information on for each market are:

1. **End User:** Who specifically would be using your product? The end user is often your "champion," who you need on board so that your product is successfully adopted. You have narrowed down your end user some already, but as you do primary market research you may find the category can be even further segmented. (The end user is not necessarily the person who decides to purchase the product, as we discuss later in Step 12, Determine the Customer's Decision-Making Unit [DMU]. If you are making a children's video game, the kid who plays it is your champion, because he tries to get his parents, the economic buyer, to purchase it.)
2. **Application:** What would the end user be using your product for? What is the task that would be dramatically improved by your new venture?
3. **Benefits:** What is the actual value that the end user would gain from the use of your new product? Not feature or functions, but specifically what the end user gains from the product. Is it a time savings? A cost savings? Additional profit?
4. **Lead Customers:** Who are the most influential customers that others look to for thought leadership and adoption of new technology? These are sometimes referred to as "lighthouse customers" because they are so respected that when they buy, others look to them and follow their lead, gaining you instant credibility. Some people call these customers "early adopters," but lead customers are not technological enthusiasts. They must be respected by others as innovative and successful customers who purchase because the product provides them with real value and not simply bragging rights.
5. **Market Characteristics:** What about this market would help or hinder the adoption of new technology?
6. **Partners/Players:** Which companies will you need to work with to provide a solution that integrates into the customer's workflow? Sometimes, this category will tie into the "Complementary Assets Required" category below.
7. **Size of the Market:** Roughly, how many potential customers exist if you achieve 100 percent market penetration?
8. **Competition:** Who, if anyone, is making similar products—real or perceived? Remember, this is from the customer's perspective and not just yours.

9. **Complementary Assets Required:** What else does your customer need in order to get the "full solution," that is, to get full functionality from your product? You will likely need to bundle your product with products from other manufacturers so that customers can easily buy your product and have full functionality. At the very least, you will need to identify which other products your customer will need to buy to use your product. For instance, if you are developing a game for the Sega Dreamcast video-game console, your customers will need to be able to purchase the console as well. Since the console is not sold anymore, this need will limit your customer's ability to purchase your product.

It is easiest to organize this information in a matrix, where each potential market opportunity is a column header, and each category of information is a row. The SensAble example further on shows how such a matrix could be organized.

There may be other categories that are relevant to your situation. Also, some of the rows in the example matrix may be unnecessary for your situation; but this general format can be a good starting point for you to customize as appropriate. This matrix has proven to be helpful for hundreds of companies; also some have added or removed categories of information to make the matrix more valuable to their specific context.

HOW LONG SHOULD I SPEND ON MARKET SEGMENTATION?

Give your full attention to this research for at least a few weeks (and maybe much longer if your situation permits). Also, make sure you are talking to customers in the target market to get good data. The amount of time you spend will depend largely on how effective your team is at getting primary market research. You should spend enough time so that you can fill out the matrix for all your top segments with some accuracy. Don't just search the Internet and debate this in your office.

It is likely you will not find a perfect market opportunity, but there rarely is one that is "perfect." Do not let yourself fall into "analysis paralysis."

Do not let the market segmentation be a never-ending process. The objective is just to get an accurate assessment of the market opportunities so you can move to the next step. After all, this is Step 1—you have 23 more steps to go! You will likely revisit this step as you get more information from the future steps. While the steps are presented in a sequential manner for the sake of simplicity, they are often iterative in nature, as the overview illustration shows at the beginning of the book (Six Themes of the 24 Steps).

EXAMPLE

SensAble Technologies

SensAble Technologies started its life as a powerful but raw technology that enables people to feel three-dimensional (3D) objects rendered by a computer. Based in the MIT Artificial Intelligence Laboratory and specifically in the Robotics Laboratory supervised by the legendary Professor Rodney Brooks, then-MIT undergraduate Thomas Massie created, working with his Professor Ken Salisbury, a new device that would give its user the sense of touching virtual objects using a stylus-like interface. The device, named the PHANToM, would simulate shapes, motion, weight, and many other physical properties by increasing or decreasing the resistance or force felt by a user when moving a finger or stylus as shown in Figure 1.2.

As others heard about this breakthrough idea and subsequent technological implementation, Massie received queries from all over the world about potential uses for the technology. He started to sell versions of the lab product. However, his "early adopters" consisted mainly of universities and research labs—"technological enthusiasts" who will buy almost any innovative product. (Geoffrey Moore's book *Crossing the Chasm* goes into greater detail about technological enthusiasts, and says that these customers can be a first bridge to the ultimately most desirable broader market called the "early majority.")

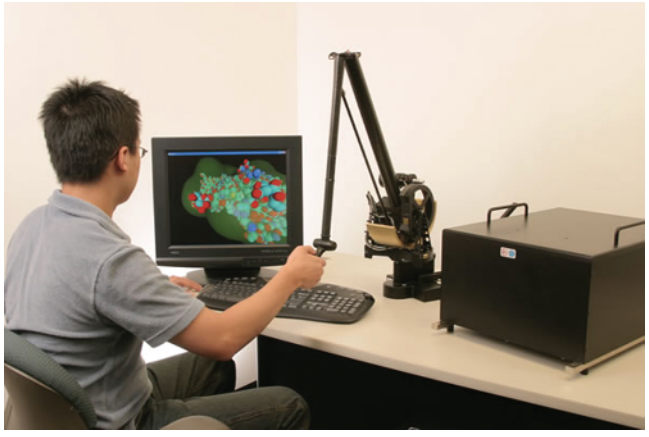


Figure 1.2 The SensAble PHANToM.

When I first met Thomas, he was selling these devices to researchers under the company name SensAble Devices. He was interested in building a much more commercially oriented business that could have a bigger impact on the world, so we joined forces to create SensAble Technologies.

We worked hard to find a scalable market opportunity that would allow our business to reach the goals we had set out to achieve: being a company worth tens of millions of dollars in the relatively short time horizon of five years or less. I worked with our business development manager, John Ranta, who had experience in previous startups identifying such market opportunities and doing the hard work of primary market research with customers to discover their real needs. We spent weeks building out a list of potential markets, using our current customers, trade show feedback, incoming product inquiries, and our own imaginations as sources of ideas.

No idea was too crazy at this point: a boxing channel, fixing space stations, computer mice that vibrated, helping to perform medical surgery, pornography, new computer games, educational opportunities, data analysis, flight simulators, virtual worlds, museums, sports training, computers for the blind. We did not prejudge any idea; rather, we wanted to open the aperture as wide as possible.

We discussed ideas weekly, sometimes nightly, and we discussed our core values and personal passions, which made certain markets unattractive (e.g., pornography). Another outcome of our brainstorming was that we saw where our product's real value was—applications that used 3D data, not those using two-dimensional (2D) data.

Once we had a comprehensive list of possibilities, we then systematically narrowed the field down to eight industries, made the outline for a market segmentation chart (see Table 1.1), and then spent weeks doing the primary market research to fill out the matrix. Somewhere around 90 percent of the data in the chart came from direct interaction and talking with real potential customers in these industries about their situations, pain points, opportunities, and market characteristics. Very little data came from research reports by well-known research firms or by finding data on the Internet.

Each of these market segments were legitimate candidates for our initial market, and each was distinctive with different sets of customers, end users, and applications. For example, "Entertainment" was chosen as a potential market because of the strong interest we received from computer animators making 3D movies like *Toy Story*. Our tool would make it easier for them to design on the computer without their design intent being compromised. They could also do it in a much more productive manner than was available at that time.

Similar to what we learned in the digital entertainment industry from an application standpoint, the "Industrial Design" industry was selected based on feedback that product designers wanted to create 3D shapes on the computer in a way that was as easy as working with physical clay.

Likewise in each group—Medical Visualization (of 3D data), Surgical Simulation (and training), Micro Surgery (robotic-controlled operating room procedures), Geophysical Visualization (analysis of 3D seismic data), Non Visual C.H.I. (Computer Human Interface for the blind to use computers),

Table 1.1 The SensAble Market Segmentation Chart

Industry	Entertainment	Industrial Design	Medical Visualization	Surgical Simulation	Micro Surgery	Geophysical Visualization	Non Visual C.H.I.	Prototyping
End User	• Animator	• Stylist • Designer	• Radiologist • Surgeon	• Med Student • Surgeon	• Surgeon	• Geophysicist	• Blind Person	• Engineer
Application	• Sculpt • Animation • Paint	• Sculpt • Paint • Modeling	• Segmentation • Navigation • Surgical planning • Diagnosis	• Training • Surgical planning	• Opthalm. Surgery • Neurosurgery	• View enhancement • Drill plan	• H.U.I.	• Design review • Model evaluation
Benefits	• Ease of use • Reduce cycle	• Reduce cycle • Increase accuracy	• Ease of use • Increase accuracy	• Increase use of new tech. • Increase accuracy	• Reduce cycle • Increase accuracy	• Reduce errors • Increase yields	• Increase access, "mainstream"	• Reduce cycle • Improve designs
Lead Customers	• Disney • ILM • Dreamworks	• Toyota • Ford • Rollerblade	• Brigham & Women's • German Cancer Rsrch	• U. of Colorado • Penn • BDI	• Dr. Ohgami • Ottawa Eye	• BHP • WMC / CSIRO	• Certec • U. of Delaware	• Volkswagen • Stratasys • Toyota
Market Characteristics	• Early adopt. • High-priced talent • High growth	• Dislike CAD & computers • High-priced talent	• Mainstream • High-priced talent • HMO	• Mainstream • High-priced talent • HMO	• Early adopt • High-priced talent • HMO • Not computer automated	• Late main. • Oligopoly	• Late main. • No money • Gov't sponsor	• Mainstream • Pressure to reduce prod. cycle
Partners/ Players	• Alias • Soft Image • Discrete Logic	• PTC • Alias • Imageware	• GE • Siemens • Picker	• Smith & Neph • Heartport • Ethicon • US Surgical	• Toshiba • Hitachi	• Landmark • Fractal Graphics	• IBM • Apple • SUN • HP • Microsoft	• PTC • Solid Works
Size of Market	40,000	X00,000	X0,000	X0,000	X,000	X,000	X,000,000	X00,000
Competition	Watcom	None yet	None yet	Immersion	None yet	None yet		None yet
Platform	• SGI • Windows	• SGI • SUN	• SGI • SUN	?	None	• SGI • SUN	• Windows	• SUN, HF
Complementary Assets Required	• NURBS • Stylus • Dynamics	• NURBS • Stylus	• Voxels • Stylus • VRML	• 6 DOF • Custom devices	• 3 Finger scaling	• Voxels • Stylus	• Windows I/F • P300	• NURBS • VRML • Dynamics

and Prototyping (virtual prototyping of CAD/CAM files to see how they worked together; for example, to check to see assembly feasibility)—we had enough evidence to know that the market satisfied well the seven key questions presented earlier in this step.

For each of these segments, we then had to do primary market research to fill out the matrix.

We had the luxury of already selling to technological enthusiasts, which gave us enough of a revenue stream that we could spend over three months on the market segmentation analysis. You will want to spend at least a few weeks, but you are unlikely to have the good fortune to be able to spend several months.

Our matrix included a line for "platform," which referred to the computer operating system and hardware that our technology would require for it to be adopted by that particular market segment. This may or may not be relevant to you but it was to us at the time because there was a big difference from running on dedicated graphics computers (Silicon Graphics Incorporated—SGI—at the time) versus much lower-cost personal computers.

Our row labled "Complementary Assets Required" depended on which industry we would target. For us, the row labeled "Complementary Assets Required" varied quite a bit depending on the industry we would target. For the animator in the entertainment market segment, we included a NURBS (which stands for Non-Uniform Rational B-Splines) geometry engine so it could output the data files to the Alias Wavefront visual rendering animation suite. This software program was used by animators worldwide to create three-dimensional animated images rendered in color to make the captivating scenes you see in animated movies today. The device would also have to include a stylus because the animators loved to sketch in 2D and were very accustomed to this. The last piece that we needed to include was a dynamics engine so that the figure could move in a realistic manner. All three of these items were generally available through other vendors so they were not critical parts. However, it was important to have a very specific understanding of what our end users were using, to know what else was needed to make our system complement existing systems, and to have access to this information or technology through other vendors.

For our partners and customers, NURBS was a very specific requirement that we needed to fulfill because it was the required data format to fit with the significant investments already made. In other words, we needed to understand what data was upstream of our solution, how we would receive it, what was downstream from our solution, and how we had to output files.

SUMMARY

The market segmentation process identifies multiple potential market opportunities. Once you have a list of potential markets, direct market research-based analysis on a finite number of

market segments will help you determine which markets are best for your idea or technology. The goal of the research is not to provide a perfect solution, but to present a wide spectrum of market opportunities as you start to think about where you will focus your business. Primary market research, which involves talking directly with customers and observing them, is by far the best way to identify good market opportunities. This research will help you select a beachhead market in the next step.