# STEP 4
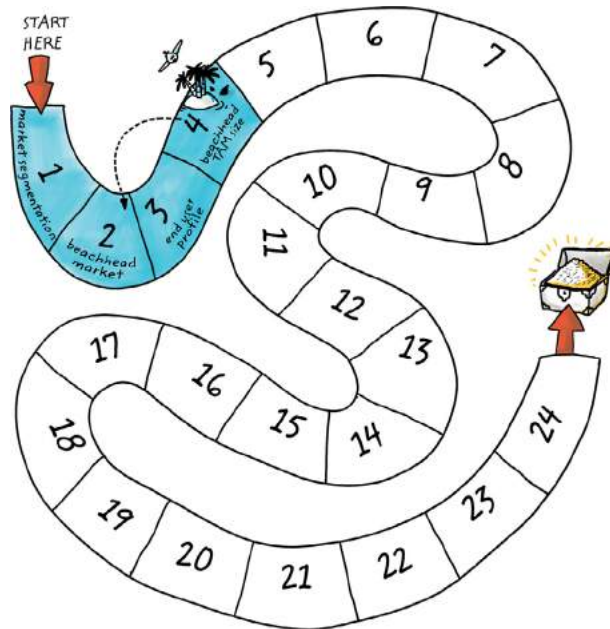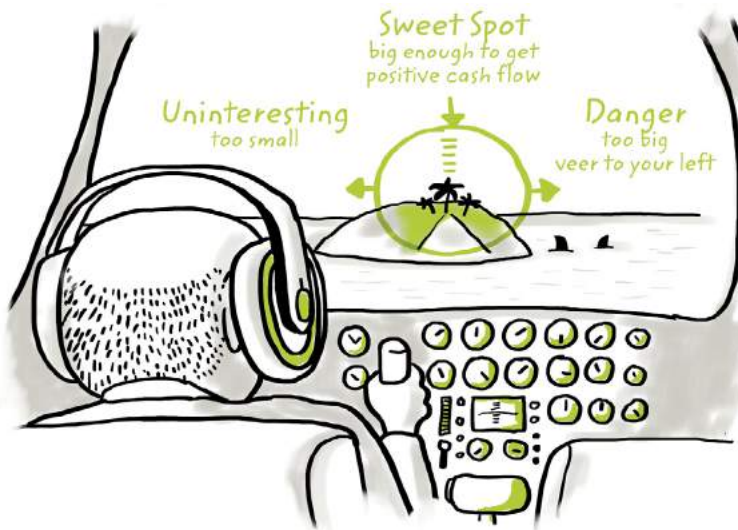
## Calculate the Total Addressable Market (TAM) Size for the Beachhead Market

- Use the demographics from the End User Profile to determine quantitatively how large your beachhead market is.

- Use this market size number to determine whether you need to further segment the market to have a more appropriately sized beachhead market.



*It is important to start to understand the size of the market you are targeting early; you will modify this as time goes on, but it is wise to be thinking about this point early on and develop at least a rough market size to know you are heading in the right general direction.*

Defining your beachhead market and End User Profile provides you with enough specificity to make a first-pass calculation of the Total Addressable Market (TAM) size for the beachhead market. The TAM for your beachhead market is the amount of annual revenue, expressed in dollars per year, your business would earn if you achieved 100 percent market share in that market.

To calculate the TAM, first determine how many end users exist that fit your End User Profile using a bottom-up analysis based on primary market research. Then, complement this with a top-down analysis to confirm your findings. Then determine how much revenue each end user is worth per year. Multiplying the two numbers results in the TAM.

You are looking for a market that is big enough for you to get to critical mass, develop key capabilities, and get to cash-flow positive in the market. However, if the market is too big, you will likely not have sufficient resources to compete, and as a result you may get overwhelmed and either not succeed or have to raise money without much of a track record for potential investors to evaluate.

Entrepreneurs often tend to inflate the TAM with excessive optimism, but a big number is not necessarily better. The goal of this exercise is not to impress others, but to develop a conservative, defensible TAM number that you have faith in.

## BOTTOM-UP ANALYSIS

The best way to calculate the number of end users that fit your End User Profile is a bottom-up analysis, often termed "counting noses." Customer lists, trade associations, and other sources of customer information can help you identify how many customers there are, as well as how many end users each customer has. Sometimes this is called "counting noses" because you are getting very specific and you know where each potential customer is.

## TOP-DOWN ANALYSIS

A top-down analysis starts by using secondary market research, such as market analysis reports, to determine how many end users meet different characteristics. This data is usually expressed with an inverted pyramid that has several horizontal levels, where the bottom-most level is the smallest and contains all end users who meet your End User Profile. A top-down analysis should be complementary to your bottom-up analysis for two reasons. First, in top-down analysis, you will often overestimate the number of end users in the market because you are not being as specific in your analysis. Second, too much top-down analysis will lead you to focus on spreadsheets, not customers; I have never seen a real live customer hiding in a cell on a spreadsheet.

## FROM "HOW MANY END USERS?" TO "SHOW ME THE MONEY"

Once you have counted the number of end users who fit your End User Profile, you will determine how much annual revenue an individual end user is worth. Multiplying the revenue per end user by the number of end users will give you the TAM as dollars per year.

You will have to make some assumptions about how much a customer is willing to pay per end user. As much as possible, base the number on the budgets of the potential customers you have identified. How much are they spending today to accomplish what your product does? How much have they paid in the past for other new products? How much value does your product create for them?

## WHAT SHOULD MY TAM BE?

If, at this point, the estimated value of your TAM is less than $5 million per year, it is possible that your new venture has not identified a big enough beachhead market, especially because entrepreneurs often inflate the size of their market and their expected market share. Usually, the market will be even smaller than you think, and you will not be able to achieve the level of market share that you think you will. Your advisors, partners, and investors know these things, so if your TAM is very low to start, they will assume it is actually even lower. In such a small market, it will likely be very difficult to get to cash-flow positive and achieve critical mass.

Generally, a TAM that is between $20 million per year to $100 million per year is a good target. Anything over $1 billion certainly raises flags. It is possible that an initial TAM of $5 million per year could be a successful business, if you can capture the market quickly and convincingly, especially if the gross margins on your product would be very high (e.g., 90 percent as it would be for software, mobile apps, information-based business models) and you do not need a lot of employees to do it. This could create positive cash flow from the market, which would be a significant accomplishment and a good beachhead market.

As you learn more in the later steps, you will likely come back and revisit this calculation and modify it to make it more credible. Determining the TAM is a fundamental part of creating a successful product or service. You will also need to have a clear understanding of your market when presenting your idea or technology to others, such as advisors and investors, because they will expect you to present a TAM figure and explain your logic behind it. However, do not spend an inordinate amount of time on the TAM calculation, because there will be other factors that influence your success as well, such as gross margin, speed, potential for dominant and sustainable market

share, and strategic value. As you get more sophisticated, you will also be very interested in the growth rate of the TAM. You would measure that using something called the Compound Annual Growth Rate (CAGR).

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## EXAMPLES

### SensAble Technologies

Our very clear focus allowed us to do a bottom-up analysis in a reasonable amount of time, counting real customers. We had already talked with a few toy companies, such as Hasbro, and we were able to easily determine how many other major toy companies there were from generally available free data at the library. We also befriended a staffer at the Industrial Design Society of America who helped us refine this list.

#### TOY INDUSTRY LIST OF CUSTOMERS

- Hasbro (United States, Asia, Europe)
- Mattel (United States, Asia, Europe)
- Fisher-Price (United States)
- FP Brands (United States)
- Creata (United States, Asia)
- Equity Marketing (United States, Asia)
- Marketing Store (United States)
- Gemmy (United States)
- Gentle Giant (United States)
- Whitestone (United States)
- Bandai (Asia)
- Tomy (Asia)
- Unitec (Asia)
- Hermon Industries (Asia)
- Luen Shing (Asia)

- Synapse (Europe)
- Schleich (Europe)
- Playmobil (Europe)
- Disneyland (Europe)

One early realization was that toy companies existed in three different geographic regions—the United States, Asia, and Europe. We had not adequately segmented the market, and would need to choose one of these geographic regions.[1] A better way to display the customers, then, was a three-column chart, as shown in Table 4.1.

Then we calculated how many industrial designers were at each company. Since we had a lot of dialogue with the user base and built up trust and confidence, we were able to easily determine how many industrial designers were at one customer, Hasbro. We then spoke to our friends at Mattel and Fisher-Price and determined with high confidence the number of industrial designers at each.

As we determined the exact number of designers at a number of companies, we were able to start calculating a number that we called "designer density," which gave us the number of designers per

**Table 4.1**  SensAble List of Customers for Toy Industry

| Europe | United States | Asia |
| --- | --- | --- |
| • Synapse | • Hasbro | • Bandai |
| • Hasbro | • Mattel | • Tomy |
| • Schleich | • Fisher-Price | • Unitec |
| • Playmobil | • FP Brands | • Creata |
| • Mattel | • Creata | • Hermon Industries |
| • Disneyland | • Equity Marketing | • Luen Shing |
| | • Marketing Store | • Mattel |
| | • Gemmy | • Hasbro |
| | • Gentle Giant | • Equity Marketing |
| | • Whitestone | |

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[1] We actually sold to all three markets when we started out because we did not yet understand the value of defining markets with specificity.

thousand employees and the number of designers per million dollars of revenue. The calculation helped us make educated guesses about other companies where we did not have sufficient time or connections to "count noses."

We did the same process for the footwear industry. This list, likewise, needed to be segmented by region.

## FOOTWEAR INDUSTRY LIST OF CUSTOMERS

- Adidas (United States, Europe, Asia)
- Nike (United States, Asia)
- New Balance (United States)
- Reebok (United States, Europe, Asia)
- Fila (United States, Europe)
- Ecco Design (United States, Europe)
- Stride Rite (United States)
- Spalding (United States)
- Rockport (United States)
- Timberland (United States)
- Wolverine (United States)
- Doc Martens (Europe)
- Alsa (Europe)
- Gabor (Europe)
- Kurt John (Europe)
- Clark (Europe)
- Regra Design (Europe)
- Pou Chen (Asia)
- Feng Tay (Asia)
- ASICS (Asia)

The number of industrial designers was a key input to the TAM. We then had to determine how much budget per designer existed for each customer, which required additional data as well as some assumptions and calculations. We started by looking at how much customers were spending today

for a similar but inferior digital product, or what they were spending to simply get the job done without a digital product. While there are other costs the customer may presently incur, such as shipping and scanning of physical products, elongated product cycles, and additional iterations, we focused on how much the customer spends per designer; this was an easier data point to tabulate and seemed to best represent our market potential.

Each customer budgeted for a clay workbench for each designer, which when fully equipped, cost approximately $20,000 per bench in the United States and Europe, with a five-year replacement cycle. Each customer also budgeted for a digital workstation and software for each designer that costs about $15,000 in the United States and Europe and had a three-year replacement cycle. Both of these costs would be displaced by SensAble's product. (We found that these two items often cost less for companies buying for designers based in Asia, as Table 4.2 shows.)

We also included an estimated annual growth rate, based on our primary market research. While it did not directly affect the TAM calculation, it was a useful data point for future steps that we could easily collect during this round of research. Also, a positive growth number is a good indicator of a healthy market opportunity.

## OnDemandKorea

A group of MIT students noticed a very simple market opportunity. Quite a number of their classmates and friends who were born in Korea and living in the United States were particularly interested in staying current with news and shows in their homeland. One of the major ways to do this was to watch Korean soap operas. The students noticed that many of them visited websites where they could watch bootlegged, low-quality versions of these shows. With their background, technical skills, and connections, the students were confident they could build a site that would display much higher-quality video and do it legally. The analogy would be iTunes as compared to Kazaa or the original version of Napster.

So the team dutifully built their End User Profile as you can see in Figure 4.1. They researched the number of Koreans in the United States. The first number they found was a census number of 1.7 million people; but this was a low number, as it is for many immigrant census numbers. These numbers do not include the international students and others who do not register in the census. Further digging and research online unearthed articles suggesting the number was 2.5 million, which was what businesses serving this community used as the more accurate number. While this number was good to know and valuable for the long term, the question that was more relevant to the team was how "How many of these Koreans actually go to the websites that they had seen their Korean friends use?"

To solve this problem, the team worked to identify the 89 websites (including Joonmedia, Bada, and Dabdate) that illegally showed Korean dramas in the United States. Then they used the Internet

service Compete to determine the amount of traffic each website received. The total traffic for these websites was 1.2 million unique users. They were validating that there was a market here already. But they were far from done!

Next, the team ran tests to see how much of the user base was female, as opposed to male, as their End User Profile was female, aged 20–35. After they had run many tests, they started to become confident that the ratio was 60:40 (percent of female to male users of these services). That narrowed the base down to 720,000 potential end users. Further tests found that about 55 percent of the user base were in the 20–35 age range. This resulted in 400,000 end users who fit the team's End User Profile.

**Table 4.2** SensAble Technologies Beachhead Market TAM Calculation

|  | United States | Europe | Asia |
|---|---|---|---|
| Industrial Designers/Sculptors (Toys) | 1,500 | 1,000 | 1,000 |
| Industrial Designers/Sculptors (Footwear) | 750 | 500 | 500 |
| Estimated Annual Growth Rate | 8% | 8% | 8% |
| **Primary Market Research:** | | | |
| Price per clay workbench | $20,000 | $20,000 | $15,000 |
| Price per digital workstation | $15,000 | $15,000 | $10,000 |
| Life of physical clay workbenches | 5 years | 5 years | 5 years |
| Life of digital workstations | 3 years | 3 years | 3 years |
| Annual expenditure per designer (based on assumption that each designer would otherwise have both a clay workbench and a digital workbench, and we can replace them both with our offering) | $9,000 | $9,000 | $6,333 |
| **TAM Calculation:** | | | |
| Industrial Designers/Sculptors (Toys) | $13,500,000 | $9,000,000 | $6,333,333 |
| Industrial Designers/Sculptors (Footwear) | $6,750,000 | $4,500,000 | $3,166,667 |
| **Total TAM for Beachhead ($/year)** | **$20,250,000** | **$13,500,000** | **$9,500,000** |
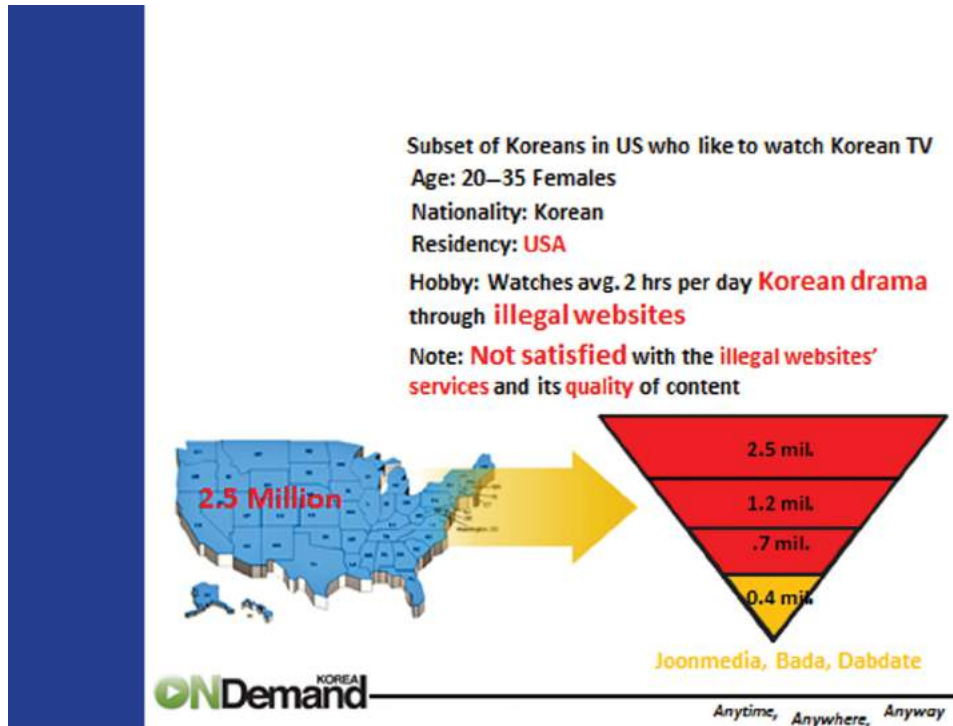
*Figure 4.1    TAM sizing example: OnDemandKorea.*

While this was an excellent start to calculating the TAM, it did not end here. The TAM is not a number of customers, but rather dollars per year. So to complete the TAM calculation, the team needed to determine how much the 400,000 potential customers would pay in a year.

Toward this end, they assumed they would use an advertising model. This was such a well-defined and attractive customer base that when OnDemandKorea did the job they knew they could, the company would have a very loyal following, spending at least an hour per day on their site. With this information, they researched potential advertising rates and used $1.25 per month, per user as a reasonable target. They assumed no other revenues so they could be on the conservative side. This translates to $15 per year per user. When this is multiplied by the 400,000 primary customers, they arrived at a beachhead TAM of $6 million per year.

While this might not seem a very exciting market for some, especially large companies, because of the company's low costs and high margins, this was a sufficient beachhead market to

get them to cash-flow positive. It was also a way to build critical capabilities and critical mass in the company to get started. They were confident that once they won this market, they could expand and increase the revenue per customer with new offerings, or simply expand their market dramatically by adding subtitles in Chinese at very little cost. Once they had the Chinese subtitles, they had become confident from their research that the Chinese living in the U.S. would readily adopt Korean soap operas as well. Once they had their beachhead, there were many ways to grow it, but the beachhead had to be big enough to get them to cash-flow positive and achieve critical mass.

This is a good example of how to do a good TAM calculation for a B2C new venture.

## SUMMARY

The TAM is how much annual revenue you would accumulate if you achieved 100 percent market share. This is used only for your first beachhead market. A bottom-up analysis, where you can show how many potential customers you have identified from your primary market research and extrapolated to the broader market, will give a more accurate picture of your market. Complementary to this, but much less compelling on its own, is a top-down analysis where you are working with market analysis reports and extrapolating without direct interaction and validation. Often, very important subtleties are missed in top-down analyses, so you need both.