

Selecting and understanding markets for technology innovation

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We recently introduced a new business model framework for technology innovation comprising five primary components: markets, products, processes, people and economics (see [What is a business model? A new approach](#)). In this paper, we explore the first component of this framework – markets.

The goal of the market component is simple and clear: to focus your business on a large, growing market with urgently felt needs that are not being met by current offerings.

However, in practice it is challenging to accomplish this ideal. In some cases, it seems that there are no unmet needs for the new technology. In other cases, innovators can be overwhelmed by the number of apparent market opportunities for their new technologies and products.

This paper discusses the importance of finding and selecting the right market, and how to go about doing so systematically and thoughtfully so that you maximize the chances for your venture's success.

Importance of market selection

Selecting which markets and customers to serve is arguably the first and most important business model decision, as this decision becomes the primary driver of pretty much everything else the business does. It is in this sense that Peter Drucker famously said that the purpose of a business is “to create a customer”¹.

In addition, a growing body of evidence suggests that choosing the right markets creates more value than having superior products or sales and marketing capabilities. For example, recent research by McKinsey & Company, Inc. suggests that substantially all growth in the large, multi-business companies they surveyed came from high growth market niches rather than through market share gains of slower growth markets².

Practical experience confirms this. Far too many new ventures go after markets that happen to be known to their founders or corporate parents, regardless of the market's inherent attractiveness or need for the innovation being offered. As a result, these companies face long, costly battles to win customers and grow revenue. Had they followed the guidelines in this article from the beginning, many of these companies (including dozens with whom we have had direct experience) would have saved substantial amounts of time, capital and energy, and would have greatly enhanced their prospects for success.

How many markets should you pursue?

There may be many potential markets for your new technology or product. However, extensive experience, popularized by Geoffrey Moore in *Crossing the Chasm*, suggests that technology innovations should focus initially on a *single* target market ³.

Why is this? Surely new ventures need to avoid putting “all their eggs in one basket”? The reason is because superficially, markets are simple, but as you engage with them, they rapidly overwhelm you with complexity. Truly understanding and successfully navigating a market is a substantial effort – and new ventures typically do not have the resources or management bandwidth to properly focus on understanding, building a reputation in, and winning customers in more than one market, at least initially.

Moore’s prescription (which he terms the “bowling pin” strategy) is good advice for most innovations and new ventures – first secure a solid foothold in an initial target market, which will provide the foundation for a solid, profitable business. Based on this foundation, you can then enter additional markets.

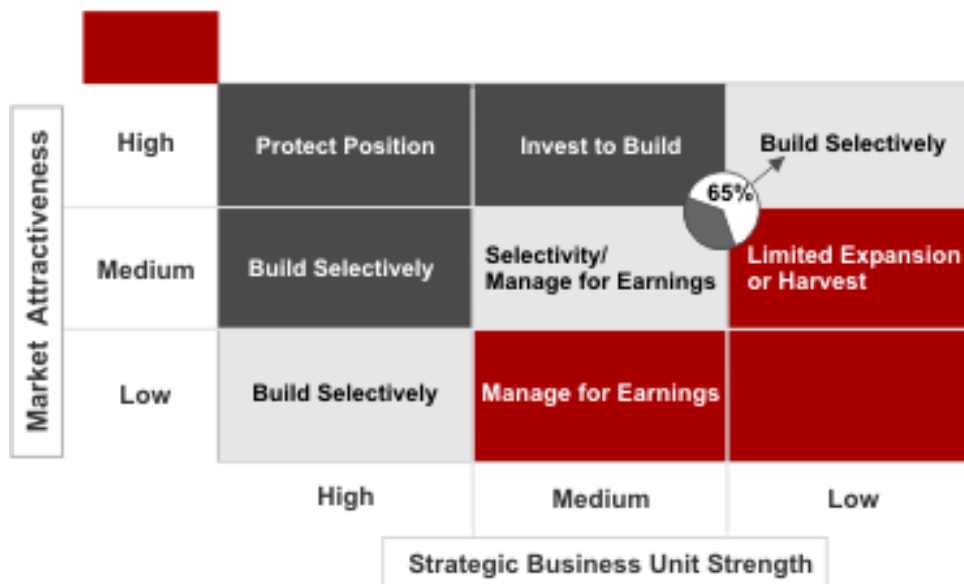
Note that you may need to test several different markets before finalizing on the best one for your single focus. This is necessary both to validate your market research and often also to generate much needed revenue in the venture’s early stages. As such, it may well be sensible for start-ups to do some low cost selling into several different markets in the first few months post initial product launch. The goal of this activity, however, is to confirm as quickly as possible the one market that will help propel your business to sustainable profitability.

Identifying and evaluating possible markets

You should begin identifying and evaluating a full range of possible markets well before actual product development begins, ideally during the initial ideation and concept stage. Generating a first list of possible markets is normally pretty easy for most innovation teams – a typical brainstorming session can develop an initial list of dozens of potential markets. This initial list can then be grouped into a logical set of potential markets, which can subsequently be revised and expanded through additional research and conversations. The goal is to uncover every possible market opportunity for your technology, and miss none.

Once you have a comprehensive set of possible markets to consider, you need to evaluate each one to see if it is worth investigating in more detail. This will necessarily be a first level, relatively superficial evaluation, in order to reduce the list of possibilities to a manageable number to evaluate in more depth.

One approach to doing this is to use a version of McKinsey’s well known nine-box matrix first developed for GE ⁴. This matrix reflects Peter Drucker’s guidance that a central principle of managing effectively is to pursue your most attractive opportunities with your greatest strengths ⁵.



The matrix assesses *market attractiveness* on one dimension, and *business strengths* on the other. Each of these dimensions is measured through several criteria. Market attractiveness criteria include market size, rate of growth, the urgency of customers’ felt needs and competitive intensity. Business strength criteria include relevance of the company’s technologies and products to the market, the company’s knowledge of the market, the extent to which the company has demonstrable prior experience in market, and its access to target customers and other key contacts in the market.

While the nine-box matrix was developed for corporate strategy (managing a portfolio of business units), we have found it useful and easy to apply to evaluating market potential for innovation. A simple scoring system can be devised to rank each of the market attractiveness and company strength criteria for each market opportunity. These scores can be assessed either informally through team discussion and consensus, or more formally based on data gathered through secondary research.

The result of the evaluation will be a short list of potential markets which score relatively high on both market attractiveness and business strengths. Each of these now must be researched in more detail.

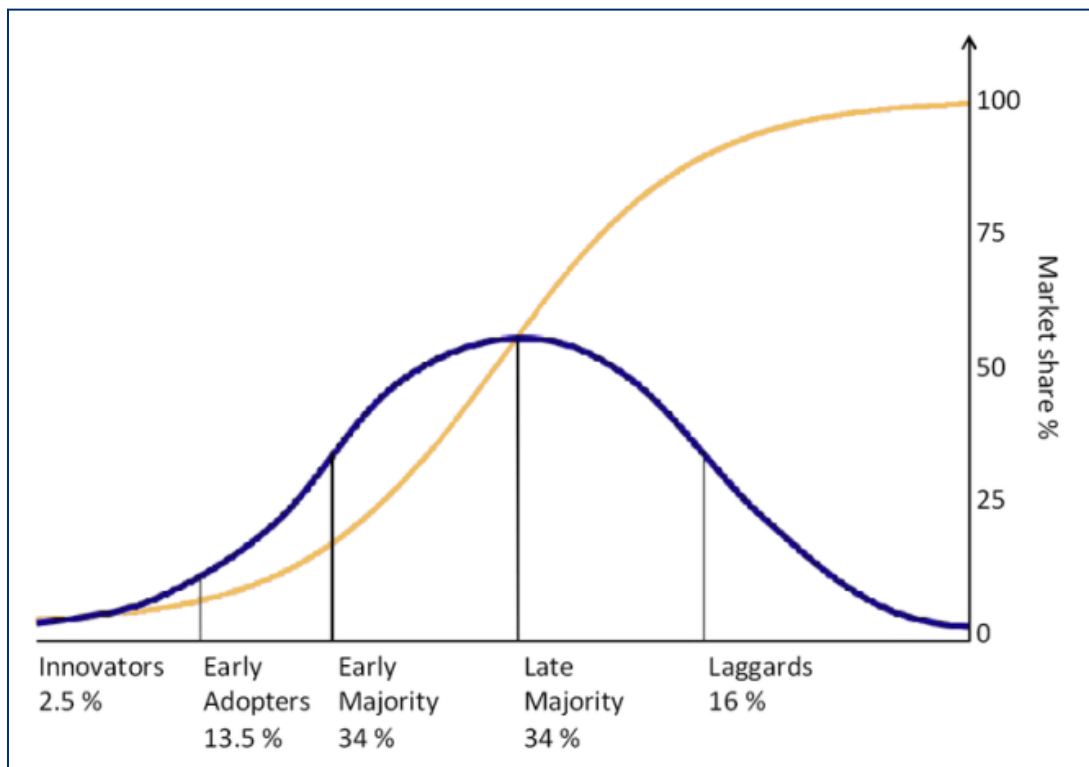
Note that in practice this is an iterative, not a linear, process. Normally the first pass evaluation is based, by necessity, on many “guesstimates”. As new information comes to light during the detailed analysis of your short listed markets, you can go back to your initial list, change the evaluation and perhaps change which markets are on your short list.

Understanding the current make up of the market and its likely evolution

The next step is to understand each of the markets you are seriously considering in more detail. Specifically, you need to understand where the market is on the *technology adoption cycle*, as well as the market's current *structure*, *value chain* and *ecosystem*. Understanding the market in some detail is necessary in order firstly, to properly identify customers who truly have unmet needs, and secondly, to design an optimal business model for that market.

Technology adoption lifecycle

The technology adoption lifecycle was first developed by Joe Bohlen, George Beal and Everett Rogers of Iowa State College^{6,7,8}, and it became widely accepted in the technology industry after being popularized by Geoffrey Moore, who identified the well known *chasm* that typically exists between the early adopters and the early majority.



For purposes of market evaluation, it is important to understand that the nature of each market, and as a result the business model required for that market, is different at different stages of the technology adoption lifecycle. If the market you are addressing is at an early stage, or is only just forming, perhaps because your technology category is new, then you face a strategic challenge that is completely different from an established, relatively mature market.

There are also significant differences between different types of early stage markets, depending on how new to the world the technology is – for example, the challenges faced by IBM introducing the world to the PC (what do I need it for?) versus those faced by Google introducing a better kind of search engine. There is no space to detail these challenges and how to approach them in this paper, the interested reader is encouraged to consult the references.

Market structure, value chain and ecosystem

Market structure, value chain and ecosystem are related concepts that essentially help understand the participants in a market, their roles and relationships, and how total market value is apportioned amongst them. Structure is about the supply / demand dynamics, particularly the concentration of and balance of power between buyers and suppliers, as described by Michael Porter with his well known five forces framework⁹. The value chain, a concept also developed by Porter based on McKinsey's business system framework, describes the sequence of value creating activities in a business or a market¹⁰. First introduced by James Moore, the concept of the market ecosystem is broader, encompassing customers and the oftentimes complex web of players and relationships in an industry, particularly technology-based industries¹¹.

All of these are valuable tools, but at a minimum it is important to gain an understanding of the primary groups of players in a market, and the basic economics of the market. First and perhaps most important is to understand the different customer segments – groups of customers with similar characteristics and buying behaviors. In addition, it is important to understand the basic value chain or business system in the market, which may include component suppliers, system manufacturers, and various levels and types of distribution channels. And for both customers and the value chain, you need to understand the trends in the market, and where it is moving.

The more you learn about the market, the better you will be able to design a successful business model for that market. You can gather much of the information you need through secondary online research. In addition, interviewing key market participants such as leading customers, channel partners, vendors, trade association executives, journalists and research analysts will provide a rich understanding to supplement your online research. Using these approaches and some of the tools described above, we have found that in practice it is possible to develop a reasonable first level understanding of a market within weeks.

Identifying target customers

Now that you have an understanding of the essential make up of the market and its existing customer segments, you need to decide which customers should be the focus for your business.

Existing customer groups can be analyzed to identify to what extent their needs are being satisfied by current offerings. In most markets, there are some segments that are pretty well satisfied by current competitors, and those competitors will fight hard to protect their position in what is likely a core segment

to them. But there are also likely to be some segments whose needs are not fully satisfied by current offerings. These segments are worth exploring in more detail, as discussed below.

Several thought leaders., including Peter Drucker¹², Clayton Christensen¹³, W. Chan Kim and Renee Mauborgne¹⁴, discuss the importance of exploring *non-customers*. These include those who buy infrequently, those who choose not to buy at all, and those who never thought to buy. Christensen explains in his seminal work *The Innovator's Dilemma* that in many instances, disruptive innovations that have overturned existing markets first gained traction amongst people who had not previously been customers. The beauty of finding non-customers and turning them into a market, as detailed in Kim and Mauborgne's *Blue Ocean Strategy*, is that frequently you can establish a highly profitable position for a sustained period of time with these customers before competitors come to realize what you have accomplished.

In looking for such market opportunities, it is important to consider why these non-customers are not buying, so that you can develop the right solution for them. There are basically three reasons:

- *Non-customers do not know a solution is available.* Non-customers may not recognize there is a solution that would meet their needs. This may be because existing offerings were not communicated to them, or may have been communicated to a different buyer in their company or household.
- *Non-customers' needs are not being met by current offerings.* Non-customers may perceive that existing offerings do not meet their needs. Most buyers typically have only two or three driving criteria in making a purchase. Currently available options may offer unnecessary benefits, and lack the two or three key benefits that this potential segment of the market needs.
- *Prices and / or risks of current offerings are too high for non-customers.* Non-customers may not buy because existing offerings are beyond their price and/or risk thresholds. In many markets, there is a *tidal wave of customers waiting to be unleashed by a simpler and cheaper offering.*

Identifying unmet customer needs

Once you hone in on one or more segments or potential segments in a market that appear to have unmet needs, you must explore them in detail in order to develop a profound understanding of their needs. This is not an area that you want to short-change with guesses or based on the views of just a handful of prospective customers. Understanding needs precisely and accurately is absolutely vital to the success of your business model. Many, many companies, large and small, have foundered because they did not quite understand their customers' needs.

Given the vital importance of understanding customer needs, it is actually amazing how many new product innovations still get developed without any customer input. In case after case we have seen in both small companies and large, innovation and product development teams continue to come up with product ideas purely based on internal thinking. The "not invented here" syndrome is alive and well!

Clarify who is the customer

Understanding needs begins with clarifying exactly who is the customer. In many purchase decisions, both in the household and in business, there are a range of roles being played. These can include the champion, the influencer, the user, the purchase decision maker, and the final decision maker / provider of the funds. Each of these different players may have different needs, so to understand the “customer” in aggregate, you need to understand the needs of each of these categories of players.

Look for urgently felt needs

The goal of course is to identify deeply felt, unmet needs. Other than the early adopters (typically 5 – 15% of any market), most people are largely resistant to change. As such, they will not respond to a new offering unless it clearly helps them deal with an urgently felt problem, or helps them capture a strongly desired opportunity, for which they currently do not have a solution. Identifying and focusing on “nice to have” needs is almost never a recipe for a successful business model. A good rule of thumb is that it should be at least a “top ten”, and preferably a “top three”, need – that is, the need you address should rank amongst the top concerns of your target customer.

Use a range of research tactics

While you can gather some information on customer needs from online research, nothing beats talking directly to prospective customers. This should be one of the earliest market development activities a new venture undertakes, and it should never end. Your past and current clients, even lost contracts, are excellent sources for researching the key needs of prospects.

The rise of social media offers a powerful new option for companies to understand customers and their needs. Paying attention to, and participating in, the ongoing conversations online about your market and product category enables you to get the pulse of your target customers quickly.

To understand customers more rigorously, it is useful to think in terms of both qualitative and quantitative research. Start with qualitative research, typically conducted through one-to-one telephone or face-to-face interviews, or focus groups. Qualitative research is about rich conversations with customers, using discussion guides to get customers talking in-depth about their needs and options. It often doesn't take more than five or ten in-depth interviews to uncover and begin to see the patterns in customer needs within a specific market.

Once you have developed a reasonable understanding of the range of customers and needs from the qualitative research, you can use quantitative research (surveys, typically done online) to assess how these apply across the market. This ensures your understanding reflects the actual market, and is not biased by a particularly vocal interviewee. There are a number of tools to allow you to conduct online surveys quickly and inexpensively. The challenge is to get people to respond. This requires you to think of and execute the survey like any direct marketing campaign, with a clear offer of interest to the recipient, a call to action and an incentive to respond.

For innovation, focus on what customers are trying to accomplish, not what they say they want

Identifying needs for innovation can be challenging, because it can appear that customers don't know what they want. In many cases the technologies under discussion are so far from current customer knowledge and experience that they have difficulty talking about whether or not they would have a need for the innovation (who knew they needed a microwave oven?). Many companies have been frustrated by developing products that customers seemed interested in during research, but then failed to purchase once the product was launched.

One useful approach to help with understanding needs for technology innovation is that of the "lead user", developed by Eric von Hippel¹⁵. The idea is to focus your customer research on those users and early adopters who are well ahead of the main market in their understanding and use of the new technologies. The feedback from these lead users can be very important in refining your offering to better meet the needs of the main market.

Another very useful stream of thinking and practice emphasizes focusing the research on *what* the customer wants to accomplish, not on *how* he or she might do so. One early proponent of this was the "voice of the customer" approach developed by Abbie Griffin and John Hauser based on the QFD (quality function deployment) methodology¹⁶. More recently, Tony Ulwick's outcome-driven innovation approach¹⁷ applied by Clayton Christensen to his "jobs to be done" concept¹⁸ have become well recognized in the innovation community. Similarly, ethnographic research aims to get inside the lives of customers to observe directly what they're trying to do. Each of these approaches looks at what customers are trying to get done, not what they say they want.

Understand both "core" and "buying" needs

Customer needs should be analyzed in two primary categories:

- *Core needs* – these are the customer's key functional needs – the core jobs the customer wants to get done. The primary focus of the product you develop will be to meet these core needs.
- *Buying needs* – these needs are to do with the customer's buying and ownership lifecycle – how the customer wants to learn about, try, purchase, install, maintain and eventually retire your product. The customer experience you design as part of your offering will be to address these buying needs.

Understanding both sets of needs is extremely important, because in most cases your offering has to meet *both* sets of needs in order for the customer to make a purchase decision.

It is important to bear in mind that customer needs continually change and evolve. There have been many cases where new market entrants have captured market share because incumbent suppliers had grown complacent in believing they understood their customers. You should ensure you are continually exploring your customers to identify whether needs have changed or whether there are new needs to be uncovered.

Understanding competitors

After customers, the next category of market participants to understand is competitors. It is critically important to define your competitors *from the customer's perspective*. Frequently this is an uncomfortable exercise for new venture managers, as with so much at stake in the venture, they are reluctant to recognize that customers do have other viable options to solve the problem. In many cases, though the innovation is clearly superior, other options are "good enough". New ventures ignore a clear understanding of options from the customer's perspective at their peril.

The first step in a competitor analysis is deciding on which competitors to focus. It is normally important to identify and analyze at least half a dozen or so direct competitors, and perhaps many more direct and indirect competitors in time.

There are a great many things you can analyze about competitors, but for new products and ventures typically the primary focus should be on competitors' target customers and offerings. For each competitor, focus on understanding:

- Who is the competitor's primary target customer?
- What are the key benefits of the competitor's offering when compared with the customer's core needs?
- What key benefits does the competitor offer to meet the customer's buying needs?
- What are the total costs and risks to the customer of the competitor's offering?
- To what extent is the competitor able or likely to respond to your offering? What are they likely to do?

Gathering competitive data can be difficult, particularly if your competitors are private companies. It is best accomplished by aggregating data from a number of sources. These include online research, particularly of the competitor's website; reviewing the competitor's sales literature; interviewing customers, prospects and channel partners; reviewing booths and chatting to the competitor's salespeople at trade shows; and engaging a third party to make direct approaches to competitors to request information and product demos.

Like customer research, competitive analysis should be an ongoing activity, and competitive summaries should be regularly compiled and analyzed.

Understanding other market participants

The final element of the market component is developing an understanding of other market participants. These might include suppliers, channel partners, strategic partners, industry association executives, media contacts, industry analysts, investors and others. Initially, identifying and speaking with a few people from these groups to gain a preliminary understanding of the market is very helpful. Over time, you will need to develop a deep understanding of each these groups in the market.

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This paper has discussed the first component of Blue Mine Group's business model framework for technology innovation – markets. By following the guidelines presented above, you will develop clear market focus and a deep understanding of your target market. This focus and understanding will be crucial to your efforts to design a successful business model for your technology innovation.

To summarize: selecting your target market is perhaps the most critical decision in designing your business model. To do so, begin by generating and evaluating a wide range of possible markets. Then explore each short listed market in depth. Develop an understanding of the overall make up of the market – where it is on the technology adoption lifecycle, and its structure, value chain and ecosystem. Explore potential target customer groups within the market, looking for customers who are not currently fully satisfied, or who are currently non-customers. Develop a deep understanding of these customers' needs, both core and buying, by listening for and observing what these customer are trying to accomplish, not just what they say they want. Seek and identify unmet customer needs that are urgently felt, and that customers will act on quickly once the right solution is available to them. Study all competitive options to assess their strengths in meeting these customer needs. And develop a sound understanding of all other market participants.

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