



CHAPTER 2. MARKETS OF INTEREST AND MARKET RESEARCH STEPS

Q: How do I come upon an idea for a new product or service ?

Typically, you will either hear about a new insight or breakthrough in science in news or in your laboratory if you are in academic research. Or you might recognize a pain point or need in the market from your existing work in industry. These are typically the two sources of ideas.

In order to recognize this idea as an opportunity to start a new venture, market research is needed. Understand the market need deeply and using the NSF I-Corps program as an example, reach out to potential end customers as actively as possible to get feedback on the concept and allow the conversations to challenge your initial assumptions on the value proposition. Refining the value proposition and understanding the real market need go hand in hand. The decision to pursue a venture is also a personal one, with motivation and passion of the founder(s) playing a major role in the decision process.

Q: How do I recognize if the product idea is an opportunity worth pursuing ?

If you are within a larger established company, the existing strategic product and market focus of the company will narrow down selection of the ideas/innovations to ones that fit the market and technical spaces the company works within. Having already stated business goals of an existing company helps in the narrowing and selection process.

In general, recognizing the opportunity requires collecting some specific information first through market research and then analyzing this data as follows:

- Segment the markets by various relevant factors, such as stage of disease when treatment would be prescribed. Understanding the specific customer profile and the specific pain being addressed leads to identification of a target indication.
- Using current market data around that indication is a starting point to understand the value of the product or service idea, but clearly understanding the value proposition for the specific customer allows for a projection of actual usage and adoption periods. See referral chain analysis below.

Q. What are some overall trends in the industry that I can use to enhance my product idea?

- Mobile computing = handheld mobile devices always connected to the internet with significant handheld computing power are increasingly common around the developing world so any software mobile app or smart device related app is instantly available globally once launched

- Ubiquitous sensors = phones and watches now have sensors with biometric measures for identifying individuals and tracking health patterns with secure storage and transmission of health data; continuous monitoring can yield very early diagnosis and enable preventive diagnostics
- Artificial intelligence/machine learning software is now accepted by US FDA and other regulatory bodies. This opens up large opportunities for smart devices and diagnostic stand-alone software. AI also plays a major role in drug discovery and new product development.
- Processing of audio and other sensory information to derive insights into health status on a real-time basis using local mobile sensors and computing devices

Industrialized life sciences – eg. next generation sequencing, mass production of proteins, automated LC/Mass spec and high throughput crystallography, etc. as new tools get developed for standardizing processes, invention and discovery get accelerated.

Q. How do I determine the value of my discovery/invention/service product ?

Understand the referral chain analysis and context of the disease indication that is targeted by the product/service

1. After identifying the indication or disease problem being addressed, understand the caregivers and steps involved from identification of the problem to resolution – ie primary care physician, or ER nurse, ER physician, imaging technician, radiologist, orthopedic surgeon, anesthesiologist, physical therapist, insurance company as payer, Co-pay made by insured patient, etc for a trauma bone fracture. Follow the treatment choices available to the caregiver for that condition. If the treatment branches into various degrees of resolution (early resolution for mild disease), keep to the referral path (diagnosis and treatment path) that is of greatest importance to the innovative intervention.
2. Identify as best as possible the costs involved in each link of this referral chain
3. Identify the point of intervention of the innovative new product or service in this referral chain and the downstream impact of this intervention.
4. Quantify the impact for various stakeholders involved including the insurance company or other payer in as much detail as possible.
5. Identify the incentive for the stakeholders to adopt the new innovation

The outcome from this referral chain analysis will be a clear identification of the value proposition of the new product/service for payers, patients and caregivers so that the case can be made not only for qualitative value but also specific quantitative value of the

product/service intervention in the current referral chain for resolution of the target problem (cost savings, better clinical outcomes etc) .

Q: How big is the market for my invention/discovery/service based venture?

This is the bottoms-up method for calculating available market size:

1. Segment the market as well as you can and identify the specific indication from market research including potential pricing of the product/service based on perceived value and context of the referral chain
2. How much of the market can I hope to capture and how soon ? Estimate market adoption as percent of total available market for the specific indication but also the rate of adoption of the new product/service needs to be factored in. First-hand market research, details of payer's reimbursement and adoption cycles are helpful in creating these projections.
3. Benchmark numbers and assumptions against historical data and evaluate dynamic impact of market drivers and hurdles on projections.