chapter 1

Identifying Your Industry, the Target Sector in the Industry, and Type of Business

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The Purpose of the Chapter

The biggest mistake a would-be entrepreneur can make is to follow blindly his or her passion about a particular invention or technology without regard or knowledge about the industry and applications to which that invention or technology will be applied. To be successful as an entrepreneur, you must select an industry and market that can reward your hard work with customers who need what you have to sell and will pay you for it. Select a strong industry—one that is growing and hungry for innovation, new products, and services—and with proper execution, your innovative idea can be the basis of a wonderful company. This is a market-driven approach to entrepreneurship as opposed to one where you simply create technology and pray that it finds a good market and application to serve. Also, if you are going to raise money from professional investors, you are going to have to defend the attractiveness of your target market with data—with facts that prove size and growth.

This chapter describes the first step in the market-driven venture process:

1. Identifying the industry you wish to enter based on your experience, education, family connections, and personal interests
2. Selecting the sector of that industry where opportunity beckons
3. Determining the type of business (product, system, or service) with the greatest potential

At a deeper level, the purpose of this chapter is to get you into the mindset of working diligently to understand markets, customers, and business opportunities. Successful entrepreneurship rarely happens by accident. Sure, timing is extremely important, but being in the position to take advantage of fortuitous circumstances is what entrepreneurship is all about. Though "hunches" or intuition may open your eyes to real commercial possibilities, they may also lead you into a trap, where even a great idea is pulled down the drain by the overwhelming forces of a declining industry. Why bother to seek opportunity in such an industry when others offer more possibilities and a brighter future?

This chapter also discusses the dynamic between your own personal experiences and interests, and the market realities needed to support a prosperous business. Entrepreneurs have passion for their new venture concepts. However, often we find a tension between an entrepreneur's own personal internal influences—such as work experience, education, and family background—and external market factors that help set the stage for a promising new venture. Just because you are wildly enthusiastic about a particular hobby or sport or industry does not mean that starting a company based just on that personal interest will be worth the effort. This chapter will help you think about these two sides of the entrepreneurial coin and, we hope, strike a balance.

Moreover, successful entrepreneurship requires that you be brutally honest and pragmatic about the facts on the ground. You must do your utmost to gather the best information available around any particular decision, and then take the information you gather seriously. You cannot pretend that a "bad" market will suddenly turn around and become a fertile ground for a new venture. And, if you come up empty, you can then check other parts of an industry for better hunting. Entrepreneurship requires market knowledge as well as innovative thinking, plus a determination to keep working through what might at first seem to be difficult barriers.

Learning Objectives

This chapter offers practical methods for:

- Gathering information on the attractiveness of a particular industry
- Identifying industry sectors and determining which are most appealing, including a method called "industry ecosystem mapping."
- Using industry analysis to define the scope and purpose of your venture

Selecting a Target Industry

Most people who aim to start a business get their initial ideas from one or more of the following "internal" sources:

- **Work experience:** We watched as Cheryl moved up the ranks as a successful salesperson for selling medical instrumentation for a market leader in eye surgery,

including cosmetic surgeries. She was determined to start her own business. Fashionable, engaging, and market-focused, Cheryl saw the combination of increasing skin cancer rates and the spending of disposable income on cosmetic products and minor procedures (such as dermal abrasion and Botox injections) as creating an opportunity to start a chain of skin health centers focused on upscale professional women in urban areas.

- **Educational background:** Matt, a business school student at our university, took various entrepreneurship courses and believed that there must be a better way to design customized business models and create financial statements than using his professor's spreadsheet templates or buying off-the-shelf packaged software sold for creating business plans. He formed a team to create a Web-based software package for business models and financial planning for new ventures—seeking to provide this as a service to business school educators. Matt convinced his business professors and their students to be the test users!

- **Family background and business experience:** Walter was an old friend from high school. It turns out that Walter's father created a company that provides de-icing services to major airlines at many airports across the United States and Europe. Walter worked in the business and became the CEO after his father retired. Walter developed great connections through the industry, and one of his customers was Federal Express (having a large fleet of its own airplanes). Walter wanted to make his own mark on the industry. He envisioned raising additional capital to start a small, feeder airline to transport FedEx packages to small, local airports in the southeastern United States. And that is precisely what Walter did.

Among student entrepreneurs, the fad seems to be to propose yet another social networking idea, following in the footsteps of Twitter or Facebook. The vast majority of these fail to become viable businesses because even though the idea is "cool," there is no clear recipe for monetizing the innovation, particularly if the Website is geared toward fellow students who are well trained not to pay for anything on the Web. This is not to say that the social networking trend is a passing fad or that you can't make money creating a social networking service. One of the teaching cases in this book (Generate) is about one of our students who developed a "LinkedIn on steroids" combined with Hoover's-style business information to empower business-to-business (B2B) salespersons. This fellow, Tom, ended up selling his company for more than $50 million within just four years of start up!

But we also encourage you to buck the trend of thinking about popular fads for new ventures. Consider mature markets that are in desperate need of innovation. Many mature industries are in the process of business and consumer transformation. Just look at the energy utility sector, once the most "boring" and today, one of the most exciting areas for new devices, software, and systems.

Moreover, often the most successful entrepreneurs avoid highly competitive spaces where lots of other entrepreneurs are trying to win. For example, we have a friend Jim who introduced a new approach to the tired, old workers' compensation industry—preventing injuries from occurring in the first place and sharing that benefit back with customers through reduced premium rates. Within ten years, Jim had built himself a $200 million a year industry. And now he is doing it again for outsourcing employee counseling services for major corporations. The same type of innovation in mature segments can be found in health care, energy, and transportation. And the advantage is that cash is already flowing in these industries—money that could be yours for the taking.

None of these factors—work, education, family experience, or the current trend—function in isolation toward new venture creation. In fact, in many cases, these factors

combine in a type of synergy that makes entrepreneurship its own special life form. Take the case of Alvin, another former student. Alvin was born in China and immigrated to the United States at a young age. Over the years, he earned an undergraduate degree in electrical engineering, a master's degree in computer science, and an MBA. The family heritage was a strong pull for Alvin. He also knew opportunity for new products and services for the domestic Chinese market was virtually unlimited. On his journey to be an entrepreneur, Alvin first took a job with Intel and then got himself an assignment in the Shanghai office to explore mobile consumer applications and services for China. A few years later, he left Intel to start what is now one of the leading mobile search and pull-based advertising companies in China. His new company was named the official mobile search provider to the 2008 Summer Olympics in Beijing. Alvin was on his way!

These are all wonderful stories, and they can happen for you as well. Each one of these individuals was a "smart" but regular person—the type of individual with whom you would enjoy having lunch or grabbing a beer: a good listener and a careful thinker, and highly attuned to how to merge his or her own personal portfolio of skills and contacts with robust market opportunities.

Figure 1.1 is designed to help you weigh how your own personal internal factors might direct you toward a particular industry as well as the target sector or niche within that industry. Take a look at it now and begin to think about filling in the boxes on the left side of that figure and how the combination of your own work experience, education, family background, and personal business goals point to an industry focus where your history and interests provide insight and understanding needed for the road ahead.

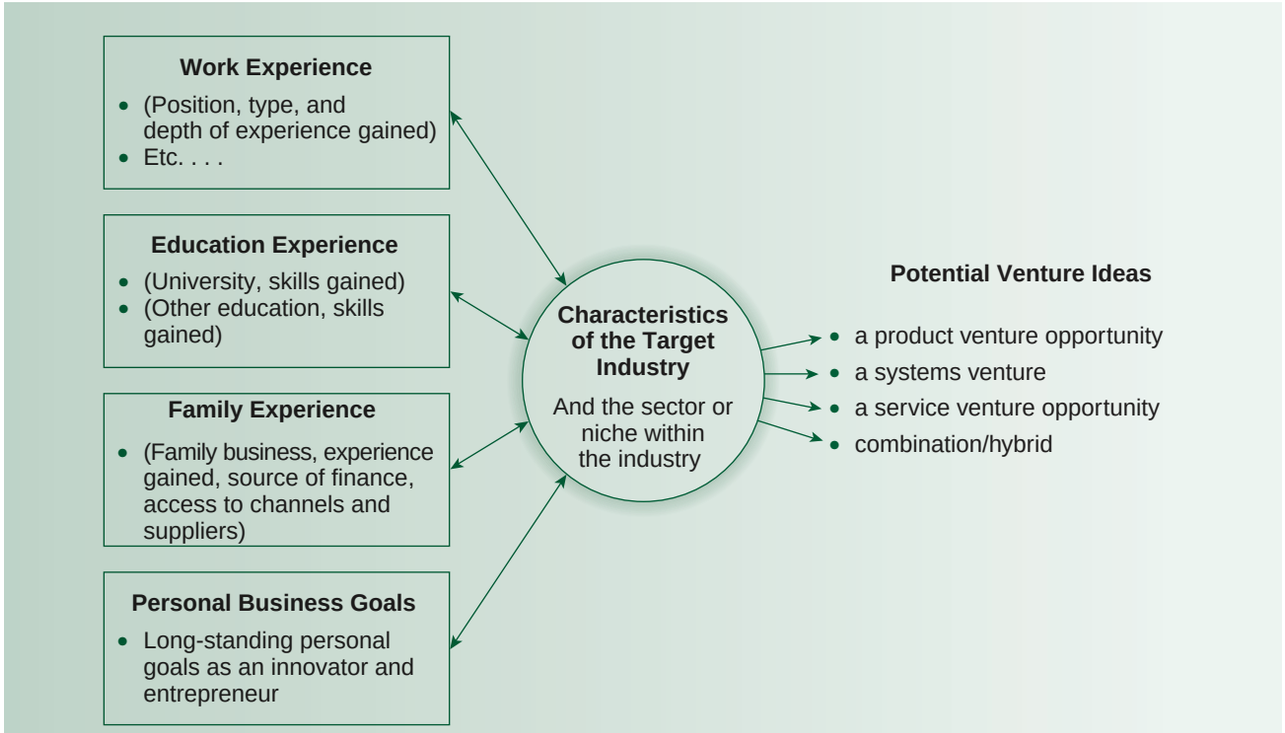

Figure 1.1 Balancing Internal and External Factors to Shape New Ventures

However, it is critically important to note that following any of these internal factors blindly down the path to a venture concept may just as easily lead you into a lot of hard work with little return. Internal factors are seldom sufficient in and of themselves for success. To capitalize on the value they do contain, the entrepreneur must integrate them with favorable "external" factors such as rising market demand, positive industry trends, unsatisfied customer needs, and so forth. The best approach to do this is to find an industry or industry sector with those positive characteristics and then build an enterprise that capitalizes on them and the entrepreneur's internal factors.

The importance of finding the "right" industry cannot be overemphasized. Being in the right industry is like bicycling with the wind at your back, making your journey easier. The key is to identify a source of powerful market demand and let that demand drive the design of your venture as well as the team that you build around the venture. And that market demand is itself an unfolding story. In doing your research, you might go after a particular market niche and find that an adjacent area actually offers even higher growth and the potential for higher profits. Consider the experience of your authors.

> As an undergrad at Harvard, one of your authors worked four nights each week as a chef at a high-end restaurant just off the campus. Despite his expertise and passion for the culinary arts, however, he never seriously considered starting a restaurant business as an entrepreneur. There were already dozens of high-quality restaurants in the area, and many of these seemed to have a shelf-life of only four or five years. The likelihood of earning a decent financial return on invested capital and 12-hour work days six days each week was slim.
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> Instead, technology—and in particular software—was the "hot thing" in the Cambridge area during that time. To pay for graduate school at MIT, your author took another three-day-a-week job working for a large commercial bank running a software-based project management system for major back-office information technology implementation. While he considered starting his own project management software company, there were already very large software players in that market space. He kept looking, thinking, and networking with individuals like himself who were hungry to start a software company.
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> Over the coming months, your author was determined to either start or join a fledgling software venture. It seemed a good idea to take an entrepreneurship course. From this course, he banded with a team of MIT graduate students with a vision of putting Unix on a PC and applying a "real-time" operating system kernel that they had developed for science experiments to commercial applications. This venture was to be a classic university spin-off. The team developed software products that became market leaders in real-time process control and then expanded into fast, memory-resident database software. One of our favorite applications was for factories for brewing beer! Customer visits were a "must!" Medical equipment, robotics, and telecommunications all came next. It was an excellent business that grew rapidly, forming partnerships with companies such as Digital Equipment Corporation and Microsoft, and eventually, it was acquired by Citrix as part of that company's virtualization software play.

The important lesson is that your author saved his passion for cooking to please his future wife as opposed to trying to make it his life's work. And his expertise in project management software was used to gain a general comfort with software technology but was not the focus of a venture due to existing competition. That was a very good thing because Microsoft Project came into existence a few years later and has "crushed" the market. Instead, your author looked for an emerging niche and team of skilled peers who wanted to gang-tackle the opportunity.

If you want a business that will provide you with a modest income and the benefits of self-employment—a lifestyle business—follow your passion and forget about external market and industry factors. However, don't be surprised if you fail to achieve financial independence and

the sense of accomplishment and freedom that comes with it. And you may spoil your passion by turning it into a job. Could you imagine running a commercial kitchen, day in and day out? Or, if your passion is fishing (such as is the case with both of your authors), being a fishing guide, rain or shine? Or, being within a family that owns a business that you are expected to take over after getting your education, and you simply know that the family business lacks growth potential and is barely making a profit? This, in fact, was the expectation of your second author.

> The Crane family had been in the retail and wholesale food distribution business for many years. As a family member with plenty of work experience in the enterprise, your author could have stepped into this business in a leadership capacity. But he chose to look elsewhere for an occupation. Why? His education and experience told him that family-owned food businesses faced tough sledding in the years ahead. Huge national food distributors were sweeping across North America, rolling over "Mom and Pop" businesses like his as they went. The idea of running a small food business was appealing, and the idea of following in his parents' and grandparents' footsteps was compelling, but Fred's business education and industry experience told him that going head to head with well-financed competitors with enormous buying power would be nothing but a series of exhausting and disheartening rear-guard actions. The profit margins of his family business were already slim and would be under continuous downward pressure as those larger competitors exercised their greater market power.
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> So, your author struck out in a different direction. He entered a field where his grasp of market information, branding, and customer behavior was in high demand, and where he would charge a premium price for his consulting services. By integrating external information with his internal capabilities, Fred stepped away from the troubled food distribution industry and caught the rising wave of market consulting.

Many others entrepreneurs, including many former students, have successfully adopted this same winning formula: Find an industry or industry sector with favorable supply/demand and competitive characteristics, *and* where one's internal strengths can be profitably applied. This is how we want you to approach your own venture.

The other important context-setting decision is whether you wish to start a new company from scratch or create a venture within an established corporation. Our examples and teaching cases in this book deliberately cover both types of situations, because each is a venture in its own right that can bring you satisfaction as well as considerable personal wealth. We have already provided you with lots of startup examples, so let's take a quick look at a classic corporate venture.

Steve, a gifted electrical engineer and MBA student in one our weekend classes for working professionals, was considering how to create a product line that would leverage his company's technology to an *adjacent* market application. The company made highly specialized chips that were used to process 3D images in medical equipment—CT (computed tomography) and MRI (magnetic resonance imaging) in particular. Steve searched and searched for other medical applications but came up with nothing. Working with the professor, both came to the conclusion: Think outside the medical field.

Several weeks later, while returning from a business trip, Steve noted the poor quality of the luggage scanning system deployed at the airport. He realized that the government would demand far better solutions—if there were any. Steve now had a venture target. He developed a plan for the course, which he took to the company's head of R&D. With the support of this executive, Steve received funding to lead a project to deliver improved scanning for airport security. September 11 had not yet happened, but it would soon rear its ugly head. Steve's project could not have been better timed. In the years since, his company has become a major supplier of imaging subsystems technology to manufacturers of explosive detections systems.

For the entrepreneur, startup or corporate, having a market mandated by a federal government agency is perhaps as good as it gets.

Situations like Steve's are not usual. Ventures often emerge from the frustrations that people encounter. Thanks to their work experience and technical educations, midlevel corporate personnel like Steve often see problems or opportunities that their companies overlook, find too small to pursue, or might view as a new growth opportunity if only a well-considered plan is brought to management's attention. You can do the same by looking at the problems and frustrations you experience as potential opportunities.

Taking Stock: Your Internal Factors

What is your relevant business experience? What are the facets of your educational background that might come into play in a venture? What connections do you have amongst your family and friends that might be brought to bear in a venture? And at a deeper level, what are your personal interests for business? In your heart of hearts, where might you want to commit yourself for a 24/7 effort for the next five years?! What motivates you to commit a big chunk of your life to building a business?

Take some time to think about these internal factors as they apply to you personally, using Figure 1.1. Like other frameworks in this book, Figure 1.1 is intended to stimulate your thinking, searching for facts and planning of your own venture.

Work, education, and family experience are factual in nature—what have you done or what exists in these three areas and the level of accomplishment in that area? Your skills and experiences might well "suggest" a fit toward a particular industry. Moreover, there will typically be multiple sectors within an industry. We want you to note all of these. We will show you how to do research on them in just a moment to identify which specific parts of an industry look best from a business creation perspective. But before we do, consider the following two examples.

Starting From Ground Zero

Unlike the characters in our two previous examples, some people lack the industry or work experience that would help them recognize and pursue an entrepreneurial opportunity. Many graduating students fit this description. How about you? Are you at a point in life where you have no real work experience? And you don't come from an enterprise-owning family that discusses business around the dinner table every night. But the idea of working for someone else leaves you cold. Don't despair. You are starting at ground zero, but your passion and a bit of good old-fashioned luck might open the door to something special.

We once had several students who, frankly, were not stellar students. School, books, and classrooms were not their thing. However, they had other admirable qualities of mind and spirit. As graduation drew near and their need to find employment became more tangible, they approached their professor.

"Professor, can you help us find a job at a bank or something?"

"I don't think you fellows are cut out for banking," the professor said.

"Then what about consulting? That pays well, doesn't it?"

"Yes, it pays well, but consulting firms only hire graduates with 4.0s," he responded.

"Then, what should we do?"

"Well, you'll soon have business degrees from a fine university, and you seem to have plenty of energy and guts. Maybe you should start your own company. That way, you can control your own destiny."

"Great," they said, "what should we do?"

"Do something you really love, because you're going to have to work harder than you have ever worked in your life—and definitely harder than you've worked in my class!"

One of the young men laughed, "Well, we sure love beer. Maybe we should open a bar!"

"Have you ever worked in a bar?" the professor cautioned. "Do you have any idea how hard it is to run a bar? You never have a night off and the employee problems are rampant."

They looked puzzled. "My guess is that you guys are going out to a bar tonight, am I right?" (Nods all around.) "Well, instead of being customers as usual, keep your eyes on the bar owner. Watch everything he does. And think about what it would be like being him six nights a week. *Really* think about it. Then come back and talk to me."

The students were back the next day, this time with long faces. "Professor, we love beer, and we like hanging out in bars, but after watching that owner for hours, we would hate his job."

"In that case, how about *making* beer to sell to bars? I had some microbrewery beer the other day and it was great. Was expensive, too. I bet there is room for another specialty beer label, as long as it's premium quality and has a good story crafted behind the product. Think about it and come back to me next week," the professor said.

Well, one of those students thought about it, and after graduation he created a plan: to enter the premium segment of beer industry, with a great Boston "story" behind the brand. This student, the professor discovered later, did not simply love to drink beer—he loved the craft and culture of brewing and had gone to great lengths to learn about how great beers are made and about the ingredients that go into them. Following his muse, he learned the lore of a unique industry. Ten months after graduation, he and a partner started a specialty beer company that a few years later won the "Best of Boston" award in its category. A dozen years later, the two partners sold that company for millions to a large national specialty brewer. Those two guys made a lot of money!

Yes, passion and energy can take you a long way in your search for the right opportunity.

Investigating the External Dimension: The Potential of the Target Industry

Up to this point, the notion of selecting a target industry may seem to be largely a "gut" call, using one's work background, education, and family experience—plus personal passion—to decide where to direct the entrepreneurial effort. But there is a difference between blind insight and informed insight, between guessing and *calculated risk-taking*. From the gut, we must now move to the head—to detailed research on the fundamental characteristics of the industries that interest you.

Industries and Their Sectors

An *industry* is a group of firms that produce products or services that are close substitutes for each other and which serve the same general set of customers. Industries are defined by the markets served by their competing participants.

Most industries can be subdivided into specific *sectors,* which, in turn, include a set of competitors that address particular customer groups. For example, the financial services industry includes many sectors: investment banking, commercial and retail banking, insurance, money management,

and so forth. Each of these sectors includes its own set (often overlapping) of competing firms, customer groups, products, and services. Some sectors may have low growth, low profitability, and little innovation; others may exhibit dynamic growth and an abundance of opportunities to make money. As entrepreneur, you probably cannot take on an entire industry, at least in the beginning. The path to success is to develop a venture within a particular niche or area within a larger industry, to grow to a leading if not dominant position within that niche, and expand from there. This lends focus to the new enterprise, and focus is all important for any new venture. And the key to success is to focus on a particular sector (or subsector) of an industry that is most promising for you in terms of a range of critical factors such as growth rate and clear channels to customers. Thus, you need to understand the industry in broad strokes and understand its sectors in detail.

As you study a particular industry and sectors of interest, look for positive indicators in the following areas:

- The size, growth rates, and profitability of the customer markets served by the industry
- The concentration and intensity of competition
- The industry, or sector's, life cycle stage
- Barriers to entry

Be as thorough as possible investigating these areas. The result should point the way to a robust market opportunity, one that can support and reward all of the hard work that you will have to do when actually launching a company based on a vision and a plan to act on that vision.

Size, Growth Rates, and Profitability

Starting a new venture in a flat or declining sector is usually a waste of time, so look for areas where robust growth is anticipated for years to come. For example, if you were looking into the imaging industry, you'd be wary of any sector that involved film-based imaging, which has been in decline ever since digital imaging gained a market foothold. Further, rarely does an entrepreneur take on an entire industry—at least in the beginning. Rather, he or she focuses on a particular sector of that industry. Markets tend to be comprised of multiple sectors. Each sector contains different types of customers and different uses for products and services. Some of these sectors might have low growth and low profitability; others have dynamic growth and lots of opportunities to make money. The entrepreneur therefore needs to know the size, growth, and profitability of key sectors in a given market. "A rising tide," as the saying goes, "lifts all boats."

Likewise, determine the profitability of the companies battling for market share in sectors of interest. If the firms that already have a foothold in a growing market cannot make a profit, what's the chance that you, a newcomer, will? If there is a publicly traded company participating in your target industry, even if not the same exact sector of that industry that you wish to target, the financial performance of that company might be indicative of what you can achieve should your venture scale into a major business. A quick trip to Yahoo! Finance or Hoover's can reveal the margins enjoyed by successful players.

Concentration and Intensity of Competition

Some industries have one or two large leaders and half a dozen second-tier competitors, all jockeying for incremental gains in market share by introducing a new product or service and, just as often, lowering prices. It's very tough for a startup to compete in such an environment. A new corporate venture, on the other hand, stands a chance because it can often leverage the corporation's brands, distribution channels, manufacturing, and credibility to break into the market with a new solution.

Most entrepreneurs should avoid areas of concentration and intense competition and seek out *fragmented markets* in which there are many small competitors and no dominant leaders. In fragmented markets, anyone with an attractive value proposition, a strong work ethic, adequate capital, and imagination has a fair shot at success. A123 Systems of Watertown, Massachusetts, for example, entered an industry with large, established battery manufacturers. In the high-performance sector of this mature industry, however, only a handful of other small startups were competing to create the rechargeable lithium-ion batteries needed to power large equipment and vehicles. A123 raised more than $50 million of venture capital and received a U.S. government grant for $259 million to build manufacturing capacity. A month later, it raised another $400 million through an initial public offering. Those had to be some pretty special high-performance rechargeable batteries!

Life Cycle Stage

In the strategy literature, technological and product/service innovation are important components of what is referred to as the industry life cycle. This life cycle has several stages: *emergent, growth, maturation, and decline.* This cycle is sometimes expressed as an S-curve[1] similar to that shown in Figure 1.2.

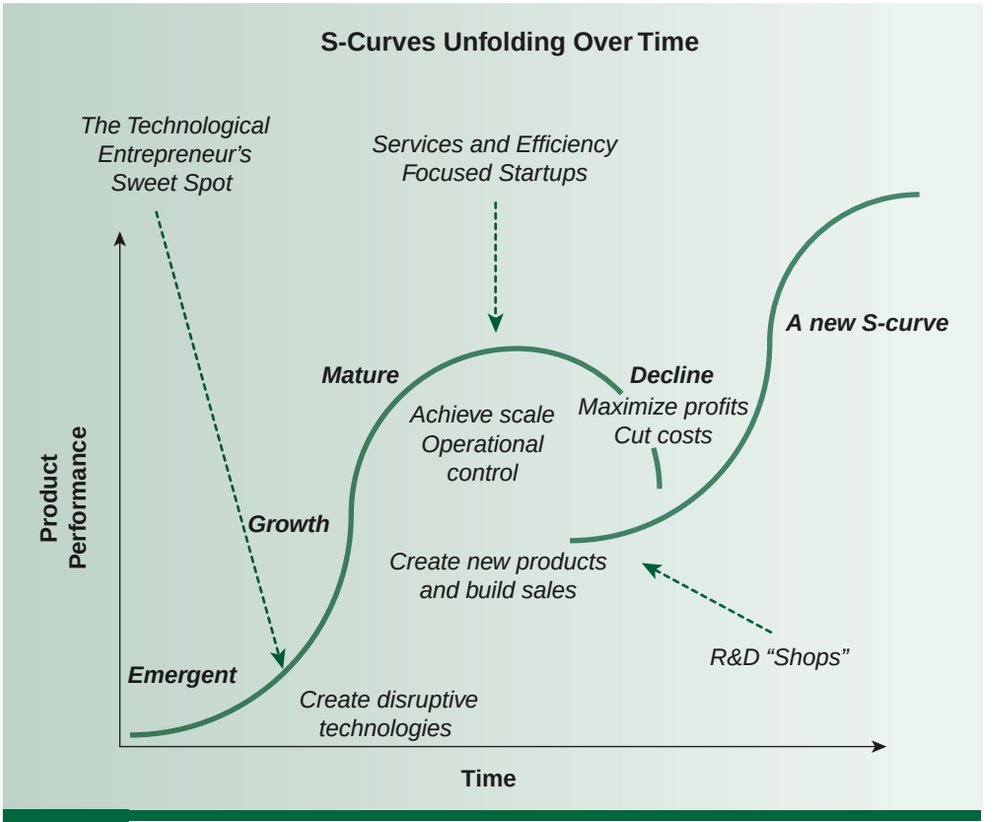

Figure 1.2 Industry Life Cycles

The emergent stage is an initial period of slow revenue growth and few if any direct competitors. Many entrepreneurs in this stage are still working out their product/service concepts. A credible market may not yet exist. Nanotechnology (which is new material science working on

[1] For a fuller explanation of S-curves, see Richard Foster, *The Attacker's Advantage* (New York: Summit Books, 1986), and James M. Utterback, *Mastering the Dynamics of Innovation* (Boston: Harvard Business School Press, 1994).

the scale of a billionth of a meter!) is in this emergent stage—although we already see it taking hold in certain mainstream applications such as apparel, house paint, and drug delivery.

The next stage is characterized by rapid growth. This is when the product or service concept really clicks with customers. The cell phone sector of the telecom industry entered this stage several years ago. Cell phone companies and service providers had finally worked out the technical kinks, and more and more areas of the country were offering service to roaming users. Suddenly, everyone wanted one of these handy devices. Today, the companies that are developing new types of batteries and energy management systems are clearly in the growth stage. As growth hurtles forward over time, more and more competitors and more capital are attracted to the sector.

Eventually, growing markets become saturated, the rocketing growth curve tapers off, and competitors find themselves in the maturity stage of the cycle. The many companies now in the field resort to price discounts and other mechanisms to generate revenues and poach customers from their competitors. They enhance their products and services in an attempt to make them stand out from the crowd. Gradually, the weaker firms exit the field, and a handful of firms are left standing. The office productivity sector of the software industry is in the mature stage of its cycle, with just a few players holding the majority of market share.

As you can see in Figure 1.2, the *S-curve* of an industry sector or product category (and companies) may eventually enter a stage of *decline*. In most cases, industry decline occurs when a discontinuous technology enters the market. The market for manual and electric typewriters, for example, tumbled when computers with word processing software came along. The same happened to the photographic film industry when digital camera technology became price competitive. Likewise, the incandescent lighting industry that Thomas Edison pioneered at the end of the nineteenth century is now moving from maturity to decline as energy-conscious users move to fluorescent and LED substitutes.

To fully appreciate the S-curve concept, look again at Figure 1.2. Notice the new S-curve on the far right. Even as one industry sector or product category is in decline, a rival, usually armed with a new and better technology, is increasing its product performance and entering a period of buoyant growth—typically at the other's expense.

TIP: OPPORTUNITY ALERT!

Many new business opportunities can be found in the turmoil created by disruptive innovations. For example, the U.S. global positioning system (GPS) changed the way ships, aircraft, and field armies navigate on the earth's surface. Those were the obvious and intended applications. Once the technology was made available for civilian use, corporate and individual ventures quickly found new applications and markets for that technology: smart bombs, handheld GPS devices for hikers, dashboard-installed auto GPS devices, downloadable maps for national parks, and "kid-track" units to name just a few.

So, when you see a new technology driving a mature industry into decline, think of the opportunities that technology may create elsewhere.

Life Cycle Implications for New Ventures

The life cycle has important implications for ventures seeking to produce new products. At the front of the life cycle, a nanotechnology entrepreneur simply has to find an application that will show his or her technology not only working but also producing value for customers. At the back side of the life cycle, a brilliant engineer seeking to develop software, systems, or services for oil or gas producers is going to surely face several cost and pricing pressures, as will the entrepreneur targeting automotive industry (original equipment

manufacturers—OEMs). Costs are counted down to the pennies in mature industries. Experience shows that technology-based ventures enjoy the greatest success when they enter the field *near the beginning* of the growth stage. This is the entrepreneur's sweet spot, shown in Figure 1.2. A123 Systems, the battery company, was in this spot, using its proprietary technology (actually, nanotechnology) to create a high-energy discharging lithium-ion battery for mainstream applications—such as cars or power tools. Apple was in the same spot with iTunes. The early to midpoint of a growth stage of a broader market is where an entrepreneur should ideally enter with a specialized application or solution. Anything much earlier—technology that is nowhere close to prime time—can mean a long and painful journey for the entrepreneur. Because no markets currently exist for these pioneering concepts, the entrepreneur starves for cash before paying customers appear. Instead, such technologies best belong in corporate R&D or in university laboratories until the technology matures to the point where it can be effectively commercialized.

On the other hand, entering the industry or sector late in its cycle—in the mature or declining stages—is a hopeless errand for the entrepreneur unless he or she has a powerful concept for reinvigorating the product or service and thereby regenerating solid growth. Lacking that, he or she will fight against entrenched competitors for a dwindling number of customers.

Exceptions to the Rule

For startups that offer new systems or services (as opposed to products), opportunities can be found at *all* stages of the life cycle, particularly for B2B plays. In these cases, industry participants are the venture's customers. For instance, makers of home refrigerators in the U.S. market are in a mature stage characterized by many competitors and modest profit margins. Demand is growing very slowly. The predicament in which these manufacturers find themselves creates healthy demand for entrepreneurs who can provide:

- Cost-saving production methods
- Operating efficiencies
- Imaginative marketing concepts
- Customer-pleasing product innovations

Thus, in B2B situations, identify areas in which companies are feeling pain and desperately seeking solutions. If you can relieve their pain or solve their problems, you will have customers, no matter what stage of the life cycle your B2B customers are in. For example, a new information system or data mining application that can substantially help a company such as Staples improve customer knowledge and supply chain efficiencies is going to get a good look, and if Staples decides to buy, it is world-class reference accounts with which to sell other retailers. Or, large, mature utility companies are actively investing in new "smarter planet" technologies in the form of software and sensors to more efficiently manage electrical grids and consumption. Even the most mature and static of industries can become hotbeds for innovation. And when that happens, the entrepreneur often becomes pivotal in business and industry transformation.

Barriers to Entry

A thorough investigation of a target industry must also consider (1) the presence of barriers to entry, and (2) what, if anything, can be done to surmount them. A barrier to entry is any requirement—capital, technical know-how, and so on—that makes industry or market entry difficult or impossible. Of the many barriers faced by industry outsiders, three are particularly important for new venture entrepreneurs: capital and time, manufacturing, and marketing.

Capital and Time

Entry to some industries/sectors requires huge amounts of capital—amounts that few entrepreneurs can raise. In other industries/sectors, years of R&D are needed to develop marketable products. As you can imagine, these two barriers usually go hand in hand. Consider, for example, the pharmaceutical industry where more than ten years and close to a billion dollars are typically needed from start to launch for a single new drug! On the other hand, Web-based social networking presents minimal time and capital barrier. Launching a new Web-based business can be fast and inexpensive.

Manufacturing

Certain manufacturing industries require particular types of machines to produce a given category of products. For building products, complex wood cutting, forming, and assembly machines are needed; for certain plastics and food products, specially built extrusion machines are required. And the list goes on. These machines can cost millions of dollars. An entrepreneur who insists on entering a capital-intensive industry needs to consider external manufacturing options—often called contract or comanufacturers—to source his or her products. An increasing variety of these options exists both here and abroad.

On the other hand, we have seen students create new data mining and analytical "production" for the institutional investment industry with nothing more than several affordable servers.

Marketing

Marketing is the third major barrier to entry that an entrepreneur needs to consider. Gaining access to customers may be difficult and costly. Consider these examples:

- A new food venture with a natural fruit snack for kids faces a serious financial obstacle: paying "slotting fees" to get its products on the shelves of major grocery and convenience store retailers. Slotting fees can reach to several million dollars or more.
- A software company's products need to be sold by knowledgeable sales people. It faces a $300,000 annual price tag (compensation, benefits, and training) for each highly qualified salesperson. Half a dozen salespeople are typically needed in the second year of business by companies in this field.

Situations such as these make entry challenging. But don't give up too easily. An imaginative entrepreneur can sometimes circumvent typical barriers by finding new and unconventional challenges to customers. This is how Dell Computer made its mark. Instead of selling through expensive retail stores like everyone else, it marketed PCs directly to customers. eBay founder Pierre Omidyar operated his new company from his rented apartment using a PC, a small server, and a second-hand table until such time as he could easily afford more space, personnel, and equipment.

Additional Environmental Scanning Can Also Uncover Rich Entrepreneurial Opportunities

Environmental scanning can uncover new venture opportunities, or at least help identify the types of users you want to get to know. Successful entrepreneurs regularly scan their market, technology, and competitive landscapes to look for opportunities, threats, and partners—to understand the ecosystems in their dynamic marketplaces.[2] As you scan the environment:

- Pay attention to trends and market changes, and how users are reacting to them; for example: a consumer trend toward purchasing locally grown food.

[2] Crane, F. G., & Sohl, J. (2004). Imperatives for venture success: Entrepreneurs speak. *The International Journal of Entrepreneurship and Innovation, 5*(2), 99–106.

- Closely look for structural changes in society and determine how those changes will affect the needs of consumers; for example: an aging population of homeowners seeks smaller, low-maintenance housing.
- Study the *trajectory* of new product introductions by leading competitors in your chosen industry; for example: Manufacturer X launches a new product generation every four years, each with more electronic systems, and each with analog features replaced by digital features.
- Keep up to date on government actions that could affect your venture; for example: the U.S. Environmental Protection Agency taking public testimony in advance of new regulations on disposable medical products.

What you learn from scanning will greatly inform your venture concept. And you may uncover an opportunity that is even better than your initial concept. It is also important to keep track of what you learn from environmental scanning and then see how it affects your choice of target customers, products, and/or services.

Figure 1.3 shows a simple environmental scan in terms of key facts, constraints, and emerging trends driving the North American landscape. Each one can shape your venture concept. While Figure 1.3 shows some over-arching trends that are affecting businesses on an aggregate level, you will have to prepare an environmental scan specific to "your industry" and "your venture." Revisit it from time to time to see if and how the external environment is changing.

Environmental scanning can hugely affect the design of a business. Here are some examples from different industries:

Trends	Over-Arching Examples	Venture Opportunities
Social	• Growing ethnic diversity • Aging • Time poverty • Value-consciousness • Eco-consciousness	• Ethnic foods • Adult diapers, nursing homes • Personal services • Dollar Stores • Green-based businesses
Economic	• Growth in electronic commerce • Shift toward experience economy	• Online businesses • Businesses that "market" experiences like ecotourism
Technological	• Diffusion of digital and mobile technologies • Growth in biotechnology and nanotechnology • Advances in medicine and medical treatments	• Social media companies • Miniature medical devices • Personalized medicine based on DNA
Competitive	• Increase in global competition • Emergence of and as competitors • Mergers and acquisitions	• Access to foreign markets; encroachment by foreign competitors here • Opportunities to partner with Chinese and Indian firms • Opportunities to merge with a partner or acquire a partner
Regulatory	• Increased protection for intellectual property • Increased emphasis on free trade • Deregulation	• Leverage IP as competitive advantage • Opening up of foreign markets for venture expansion • Reduction of entry barriers to allow new startups

Figure 1.3 Environmental Scanning Matrix

- Security: September 11 created a whole new market for startups and corporate ventures in the industry sector of Homeland Security. Many of these businesses deploy various types of sensors, databases, and workflow software to monitor, alert, and respond to terrorist threats.[3] The choice of target customer went to new buying agencies in federal, state, and local governments, as well as corporations needing protection from terrorist threats (such as utilities).
- Health: The aging of the population, as well as new government regulations, is creating new growth opportunities in home health care. We will have a dedicated case on this in a later chapter; but for the time being, imagine various noninvasive sensors deployed in someone's house that can monitor physiological conditions and well-being, and send alerts in the case of medical emergencies.
- Energy: The cost of oil is driving the creation of a new generation of electric car manufacturers; by some estimates, there are dozens of startups and corporate ventures focused on this opportunity. Energy costs are also creating opportunities not only for alternative energy sources (solar and wind, for example) but also for widely distributed energy management systems that track and balance energy consumption.
- Government regulations for specific industries: Government regulation can also be a powerful external factor that can make or break a new venture. For example, in financial services, fraudulent company accounting led to Sarbanes-Oxley legislation and a host of new software and service ventures to help companies become compliant. Publicly traded companies spend millions of dollars each and every year on software and services for accurate financial reporting and consolidation across divisions and countries. *There is no choice.*

Three Steps to Industry Analysis

If you've applied your thinking to Figure 1.1, you will have some notion of where in the universe of industries your internal factors (experience and passion) should direct you. You might then say with some assurance that your future lies, for example, in the load management sector of the energy industry or social networking sector of Web commerce. It is now time to dig deeper with three straightforward and relatively simple steps for analyzing a target industry or sector. To illustrate these steps, put yourself in the shoes of a would-be entrepreneur, Jake, who is attracted to the organic foods sector of the agriculture industry. Here is the situation:

> Jake has some personal experience with the agriculture sector. He spent several summer vacations working on his uncle and aunt's family farm, and selling their organic produce to city people each Saturday morning at an outdoor farmers market. Jake has also read widely on agri-environmental issues and the subject of sustainability. He is passionate in his belief that the nation, environment, and individuals would all be healthier, and small farmers would be more prosperous, if consumers would shift more of their food spending to locally grown organic produce. Thinking broadly, he has sketched out a rough idea for automated hydroponic greenhouses capable of providing 10 to 20 times the yield of the field-grown operations. He has gone so far as to test out a miniversion of this concept using grow lamps and other equipment in one of his university's science labs. The results are encouraging. Jake wonders if he could create a viable business by marketing certified organic food to upscale food stores and expensive restaurants.

[3] Meyer, M. H., & Poza, H. (2009, May). Venturing adjacent to the core: From defense to homeland security. *Research Technology Management,* 31–48.

With Jake's situation in mind, let's move on to the steps an entrepreneur can use to analyze a target industry. (Note: Jake and his business are based on an actual case. One of your authors helped that business obtain angel financing, which it used to construct two dozen greenhouses. The business became a supplier to upscale retail food companies and restaurants, generated substantial cash, and within six years sold out to a large food grower.)

Step 1: Correctly Identify the Industry

The first job is to *name* and accurately *describe* the industry in which you intend to operate. The North American Industry Classification System (NAICS) and accompanying U.S. Census Bureau data linked to it is a good place to begin (http://www.census.gov/eos/www/naics). NAICS provides common industry definitions for the United States, Canada, and Mexico, and groups the economic activities of specific companies into specific industries and industry subsectors. This information can help you to evaluate industry size, customer demand, competitive market share, and so on for many industries and their subsectors. Similar classification systems exist in Europe, Japan, and the BRIC countries (Brazil, Russia, India, and China).

Let's now revisit Jake's organic greenhouse concept in terms of Step 1, putting you in his shoes as entrepreneur.

Where would you start in defining this industry in a broad sense? Using NAICS, you will find an "industry" defined as Sector 11 under NAICS—called Agricultural, Forestry, Fishing, and Hunting. You will find "aggregate information" on the industry including value of production for most recent years. That is your starting point. But, given that you want to play in the "agricultural space" you do not want to analyze forestry, fishing, and hunting. Thus, you can drill down to Crop Production—Subsector 111. In doing so, you have refined your industry space to a specific sector. You can now start examining what is happening in this specific industry sector (see Step 2).

Step 2: Determine Market Size, Growth, and Profitability in a Sector

Using Subsector 111—Crop Production—you can examine market size, growth, and profitability across a range of crops. But, given that you intend to operate in the "greenhouse" space, you should define and identify your sector more narrowly, in this case by focusing on Subsector 1114—Greenhouse, Nursery, and Floriculture Production. Doing this will provide some more specific insight into your industry niche. But wait! It is even possible to drill further to Subsector 11141—Food Crops Grown Under Cover (exactly what you will be doing). It is possible to drill down to another level—Subsector 111419—and examine data on specific crops grown under cover. Using this data, you discover that organic tomatoes are in greater demand and selling at significantly higher margins than mushrooms! This industry data will help you to properly plan your product offerings.

Remember, you can gather growth rate and related data through NAICS and its direct links to U.S. Census Bureau data (or visit the Census Bureau site directly at http://census.gov/econ/census07). If the U.S. Census Bureau doesn't have the information you need, there are other sources of industry-level data. For example, *Fortune* magazine reports profits and profit growth for single and for 5-year periods for a variety of industries (see Figure 1.4 for 2008 and 2003–2008 data).[4] This single table serves as a useful benchmark for assessing the relative attractiveness of your target industry. Notice that only five of the ten industries listed for 2003–2008 are on the list for 2008. Yesterday's profitable industries are not necessarily the best ones for you to start a business today or in the future. That is what makes this type of research so important to do. Never take the health of any particular industry for granted.

If you cannot find an aggregated report—or report supplement—the sales, profitability, and balance sheet strength of publicly traded industry leaders can be readily obtained. Growth rates

[4] Industry Profit Potential, *Fortune* Survey, 2008, May 4, 2009.

Growth in Profits (2003–2008)		Growth in Profits (2008)	
1. Metals	57.9%	1. Food Service	43.1%
2. Internet Services	58.5	2. Engineering, Construction	38.0
3. Oil and Gas Equipment	48.9	3. Health Care, Pharmacy	36.9
4. Wholesalers	36.9	4. Internet Services	35.5
5. Engineering, Construction	29.5	5. Pharmaceuticals	24.5
6. Construction/Farm Equip.	26.5	6. Info Technology Services	24.2
7. Network Comm. Equip.	24.2	7. Oil and Gas Equipment	18.5
8. Railroads	23.6	8. Pipelines	18.0
9. Aerospace/Defense	23.2	9. Railroads	16.4
10. Pipelines	22.6	10. Medical Product Equip.	15.4
Some of the worst performers			
Motor Vehicles/Parts	–11.8	Chemicals	–22.5
Insurance	–18.3	Hotels/Casinos/Resorts	–101.0
Entertainment	–35.1	Airlines	–564.0

Figure 1.4 Industry Profit Potential, *Fortune* magazine Survey, 2008 Survey

Source: Fortune magazine, May 4, 2009.

can be calculated directly from those data. Go to Yahoo!Finance, type in the name of an industry leader, and look at the "competitors" section. If the company has a lengthy history, you'll find a wealth of information. For example, if you know of publicly traded companies in the agricultural sector engaging in greenhouse farming, you can check them out at Yahoo!Finance.

Step 3: Assess Industry Dynamics

The final step in our process is to understand and assess the dynamics of the industry—the many forces at work in the industry and that impinge on its fortunes. The purpose of this assessment is to shed light on developments that make yours a favorable or unfavorable industry in which to start a new enterprise. Objectivity in this assessment is essential; without it, personal enthusiasm can cloud your judgment. People have a bad habit of seeking out data that confirms what they already believe to be true while avoiding or discounting data that contradicts those preconceptions. Objective assessment is the antidote to that human foible, which is why we offer you the following "screening factors."

1. *Market growth.* Determine the rate of growth for the industry or sector you have identified above. If you can't find that information for the industry, try to find the growth rate of the industry's leaders and "hot companies."

2. *Industry profit potential.* Again, use either an aggregate figure from a source such as *Fortune* or research on publicly traded industry leaders and "hot companies." Yahoo!Finance and Hoover's are sources for this information.

3. *The industry's rate of technological change and innovation.* Opportunities are often found in the turbulence created by technological change and innovation. Deregulation can create a similar effect. News stories on company events, product announcements, and customer applications can give you a sense of change and innovation. Look also to specialized industry publications such as *ComputerWorld* (for hardware and software innovations) or *New Scientist* (for chemistry and hard science breakthroughs). For environmental innovation,

see Hot Topics on http://www.EarthPortal.com and online publications of the National Council for Science and the Environment. Or, once again, go to Yahoo! Finance and read the news stories on industry leaders. And, of course, a carefully constructed Google search may turn up incredibly valuable information on industry dynamics.

4. *The volume of venture financing to startups in the target industry or sector.* The venture capital (VC) industry employs thousands of highly trained professional analysts to do exactly what you, an amateur, are trying to accomplish: Identify areas of commercial growth and opportunity. When they find those areas, venturing financing quickly follows. So let these professionals be your reconnaissance scouts and follow their money trail. Pricewaterhouse Coopers' *MoneyTree Report* (http://www.pwcmoneytree.com) tabulates recent quarter venture capital investments by technology industry. While most startups do *not* attract VC funding, VC behavior is a good indicator of where growth is anticipated and where other venture financiers, such as angel investors, are placing their bets. At the time of this writing, biotechnology, software (generally), and medical devices are the top three destinations for venture capital, accounting for nearly 60% of all such investments in the second quarter of 2009. *MoneyTree Report* will give you the most recent information and also indicate the regional breakdown for investments by industry. Within these larger categories, certain niches will be hot. For example, in mid-2009 the $60 billion storage management industry, the niche of virtualization through software and/or hardware, was receiving much attention. Similarly, certain natural resource plays were strong in the industry and energy category (wind energy, solar energy, and biomass energy conversion), while others (oil and natural gas) were not.

5. *Strong, clear channels to markets that are receptive to new product or service innovations.* The third-party software business development programs of Microsoft, IBM, or any computer technology company are a path to their installed base. These and other technology giants generally require that your technology uses or integrates with their own tools and products, and often, undergoes some type of certification process for which you might have to pay a fee. In return, your company and its offerings are listed in catalogs and Websites, and sometimes, actually sold by their own sales forces as part of a larger enterprise solution. Or, if you are doing a consumer products venture, understanding the willingness of premium specialty retailers to try new products such as yours is an essential consideration. Examples of highly receptive retailers that are always on the search for distinctive, premium-priced innovations include Whole Foods Market, PETCO, and Trader Joe's. If you are doing a life sciences venture, today large pharmaceutical companies are desperate to fill their depleting pipelines with new potential drugs. Each one of these represents channel as well as development partners. New, small firms can prosper by aligning themselves with giants. It can provide corporate investment, credibility with customers who do not want to take a risk with a new startup, as well as broader access to markets.

6. *The concentration and intensity of competition.* An oligopolistic industry, with half a dozen major players, could create a lock on channels and suppliers. Every venture will have competitors; however, you strongly prefer that these competitors not be market leaders who spend a lot of R&D money on your exact area of innovation and show prowess in bringing it to market. Who wants to compete directly with an Apple or a Microsoft or a Dell or an IBM? Some startups succeed, but typically it is far better to focus on a complementary product or service. As part of this, you must also try to understand if there are offshore players that are strongly affecting price and, therefore, profitability. Samsung, Lenovo, and Acer are all highly effective cost competitors that are even giving Dell a run for its money.

7. *Poor access to key supplies and suppliers.* If you are thinking of manufacturing solar energy panels, you should check the availability of key inputs, such as silicon. On the same note, how eager to deal with small firms like yours are suppliers of key materials? You may

find, for example, that a major competitor has "locked up" those suppliers, thereby creating a barrier to entry. You have to be proactive and actually ask whether or not suppliers are open to cooperate with you. Suppliers will be honest if you ask. But, it is your responsibility to determine this situation.

8. Concentrated customer power. Who has the power in your sector, customers or producers? If your plan is to make and sell things through small, independent retailers (which are fast disappearing these days), the power to set prices and dictate terms of trade may be well balanced. If your customer is Walmart, Target, or Best Buy, you will be a price taker and an acceptor of terms. Customers like these have the power to protect their margins and drive yours down. How would a power imbalance like that affect your intended business? Big firms (e.g., Walmart) can dictate terms and conditions. But, those conditions will not be self-evident until negotiations begin. This is when you, as an entrepreneur, must hold the line and decide whether or not you will accept terms and conditions that are likely to be detrimental to the long-term success of your business.

Take a look at Figure 1.5. It shows how we can use these aspects of industry analysis to assess a target industry, breaking them down into more specific dimensions. The sample shown in that figure is for Jake's business.

	Facts / Data About Your Target Industry	Industry Score
Market growth	Double-digit growth, above 15%	7
Profit potential for the sector (or) Operating margin of sector leaders	Excellent margins by taking out the manual labor	10
High rate of technological change and new products	Agronomics is steadily advancing the knowledge on optimizing nutrients, seeds, and greenhouse technology	7
Flow of venture financing	Bootstrap or angel financing, with some government financing	4
Presence of clear channels to customers	Whole Foods Market was a perfect channel to target users	10
A lack of concentrated competition	Highly fragmented. Mid-sized Israeli, Dutch, and Mexican suppliers. No ConAgra.	10
A lack of offshore entrants driving down prices	For standard grocery, yes. For organics, no downward price pressure.	10
A lack of barriers to gain access to channels	Premium speciality retailers highly receptive to greater supply of organics.	10
A lack of barriers to gain access to suppliers	No problem. Seed and nutrient suppliers available. The automation technology readily available.	10
A lack of concentrated customer buying power	Walmart was just getting into the organic food business. (Today it is the No.1 seller of organic foods!)	6
	Total Score	**84**

Figure 1.5 Understanding the Dynamics of Jake's Target Industry

Scoring Key: 1 to 10, where:
1 is "a tough barrier for a new venture," 3 is "a challenge," 5 is "neither a barrier nor supporting success,"
7 is "conducive to a new venture," and 10 is "an ideal setup for venture success."

Each area of the assessment can be scored along a 1 to 10 scale using the key at the bottom of the figure. If you feel that a particular factor is not relevant to your venture, it can be deleted from the table. However, we strongly urge you to consider each and every item before dismissing anything. Any one of these areas can turn around and bite you in the back later on. When these are totaled, you will have an overall score that can be used to either (1) assess industry/sector attractiveness, or (2) compare alternative target industries or sectors. (Note: The last five screening factors in the template are placed in the reverse—for example, using the words "A lack of . . ." in front of *barrier to entry*.)

For the first two screening factors, market growth and potential profitability, we consider data showing growth over 30% as outstanding, 20% to 30% as very good, 10% to 19% as tolerable, and 3% to 9% as poor. Anything below 3% is unacceptable. Profit potential can be considered between 5 and 10 percentage points lower than growth percentages. This is based on our own personal experience in ventures. You need to see sufficient growth in an industry because this shows that there are enough customers predisposed and having the cash to buy the products and services you wish to create in your new venture.

Jake is actually doing pretty well in his industry assessment. The only two dark spots on the horizon are (a) that hydroponics is not a "hot" area for traditional venture capital and (b) that Walmart is becoming a major player in organic foods, which means severe downward price pressure. The way Jake ended up dealing with these negatives was to raise capital from angel investors and to work a good deal with Whole Foods Market and other premium specialty retailers. That is how most entrepreneurs deal with difficult venture finance and route-to-market issues.

Perhaps as important as anything else is that Jake modeled the benefit of his new automated system in terms of productivity in growing organic vegetables. In fact, that is how we came to know about Jake. One of your authors helped him develop productivity calculations based on a single prototype greenhouse that Jake had used his own money to build. They compared its growing rates to traditional commercial greenhouses. They realized that a hydroponic, automated greenhouse could provide 10 to 20 times the yield of field-grown methods and five times the yield of greenhouses that are not hydroponic or fully automated. This became a key part of Jake's ability to raise startup capital—he had designed a *better mousetrap*.

An industry scoring over 75 in this template is very much worth consideration as a venue for a venture. Any industry scoring below 25 should probably be avoided. If your industry scores in the midrange on the scale, say 50, then you must think about how you will overcome industry problems and obstacles. We'll return to this template in the Student Exercises section of the chapter.

Mapping Out the Key Players in an Industry Sector

With industry data and your assessments of the industry on hand, it is then important to focus on a venture's specific role in an industry. To do this in a powerful, simple way, we like to use a technique called *industry ecosystem mapping*.

An industry ecosystem includes all the players within a given industry, from raw material suppliers, to value-added suppliers, to assemblers and integrators, on through the distribution and support channels and their respective players. Mapping the industry ecosystem as a network of interconnected players can help you to understand the industry at a deeper level and suggest where your enterprise might fit in. Figure 1.6 is the industry ecosystem map for our friend Jake, the automated, organic gardener!

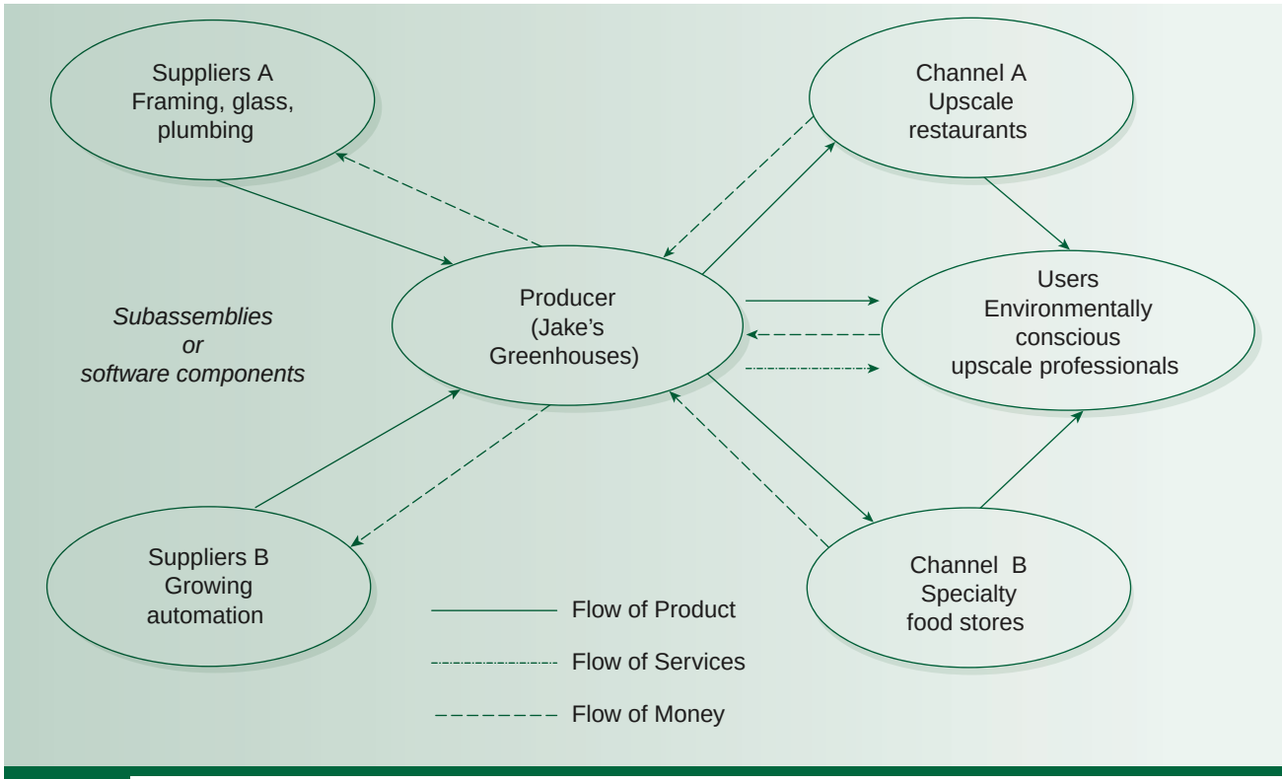

Figure 1.6 Jake's Industry Ecosystem Map

You can see that we have placed the typical startup venture squarely in the middle in the figure. Pay particular attention to the colored lines, which represent the flows of product (or components or raw material), services, money, and information and referrals. We want you to think about creating this type of diagram for your own target industry. Also note the four different types of lines connecting the actors in the chart:

- The flow of product (from raw materials to assembled products to shelf, or software development tools to completed software applications to OEM or value-added reseller to the customer or user)
- The flow of services (which may include consulting to integration to training to maintenance or repairs)
- The flow of money (often, but not always, a different colored arrow going the opposite direction as product or services)
- The flow of information (one aspect of which may be marketing referrals)

The combination of the circles filled in with company or customer group names and the lines connecting the various circles tells the story of the industry in which you wish to play.

In some cases, a major, dominant player—an IBM, Microsoft, Goldman Sachs, or Walmart—sits squarely in the middle of the industry ecosystem. These are analogous to the sun in our solar ecosystem. They are at the center and, like the planets, all other industry participants orbit around them. It would be foolish to compete directly with these behemoths because of their financial, marketing, and technological power.

It is then that you can use this mapping to identify niche opportunities within an industry. For example, if you were to draw out the ecosystem for Apple iTunes, there is clearly the

opportunity to build new iPhone applications. Entrepreneurs building these "apps" and selling them through Apple are a major bubble in the ecosystem diagram. Even a small niche—as a supplier, consultant, testing service, or distributor—may represent a good opportunity for a small startup. And who knows what that could lead to? That same niche might be the beachhead from which the startup will expand within the industry.

The spaces *between* the bubbles in the generic figure may also present outstanding opportunities. An enterprising venture might find a way to connect different industry players for more seamless and more cost-effective operations. You need only go to IBM's own Smarter Planet Website pages to find case studies that show how IBM is using instrumentation, interconnectivity, and integration to link one end of a global value chain to another. Or you might be the next iTunes, connecting music creators with music users through the Web.

Whatever you decide to do, make sure that your ecosystem map is current and *forward-thinking*. Remember, you are not planning for where things stand at the moment but where they will be in the near future and beyond.

The Last Step Toward Defining Your Venture Scope: Deciding Which Type of Business You Want to Be Within Your Target Industry

Figure 1.7 shows the first two steps of the venture scoping process: understanding the internal strengths and experiences of the entrepreneur, and understanding the characteristics (we hope positive) of the target industry for which personal strengths seem to fit and serve as the basis for a successful enterprise. Think of this as balancing and blending personal and industry analysis. We have also learned that since industries are enormous entities that the key to success is to develop a venture within a particular niche or area within a larger industry. Every successful company used to illustrate a point in this chapter is an example of this focus in one form or another—the authors' ventures included!

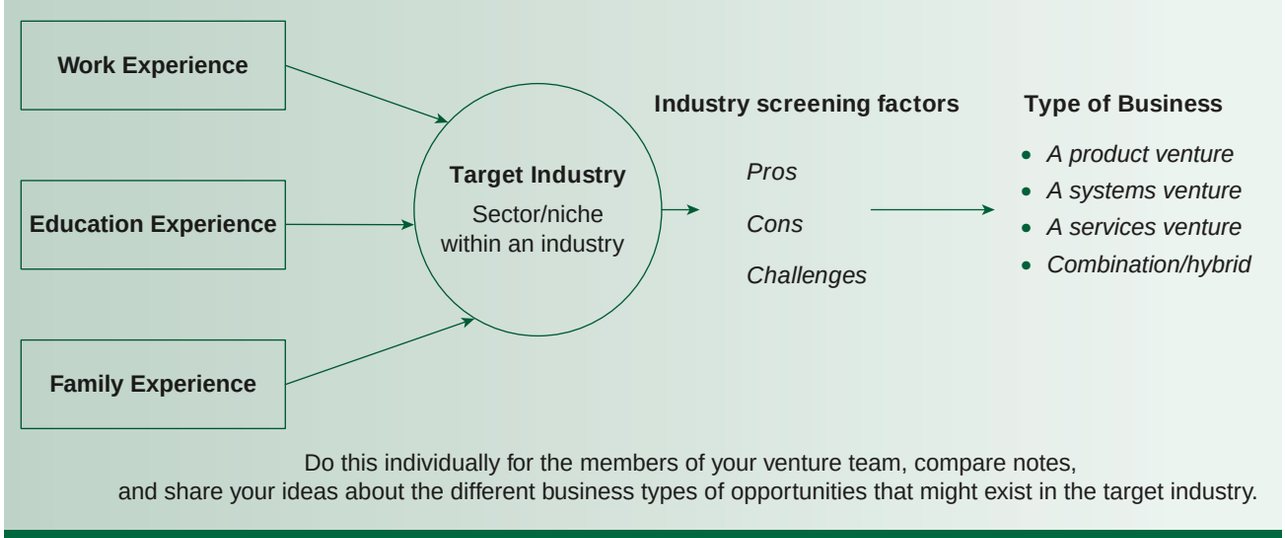

Figure 1.7 Defining the Venture Scope

Figure 1.7 also shows the third and last step of defining the scope of a venture: deciding what type of business to be in terms of creating and providing products, systems, services, or a hybrid combination thereof. There are usually many ways to "make a buck" in a given industry or sector. In general, these fall within these three categories—or a hybrid of the three. It is also important to appreciate the differences between these types of businesses in terms of how they generate revenues. It is to the last step of venturing scoping that we now turn our attention.

Different Types of Business Possibilities for the Same Target Industry Sector

It is not unusual to find customers in the same market being served by different companies focused totally on products, focused totally on systems, or focused just on providing different types of services. Suppose, for example, that we wanted to start a venture in the supply chain management industry, with a focus on mass market retailers. Those retailers, led by Walmart, want to track every product they sell from suppliers' factories to their store shelves. Now, let's consider how different business "types" created by entrepreneurs could serve the needs of Walmart and others in the supply chain management industry:

Products: Create radio-frequency identification (RFID) sensors and readers capable of tracking products in transit by item and by pallet. The venture will obtain patents on its sensor technology and find third-party manufacturers to produce its sensors and readers.

Systems: Create software-based systems to acquire sensor information in real time, communicate those data to central servers armed with sophisticated workflow management software, and use software applications to inform customers of the status of products in production, in transit, and in stock. Customers will use these data to optimize inventory planning and distribution center operations.

Services: Create any one of many service-based businesses; for example, provide Walmart employees with access to tracking data through a simple, secure Web browser. Alternatively, the venture will create a portal to facilitate competitive bidding by shippers to manufacturers and mass market retailers such as Walmart, Target, Tesco, or Carrefour.

Making Money Is Different Based on the Type of Business

The three business types not only differ in how they create value for customers, but they have, in most cases, very different revenue, cost, and margin profiles. Consider first a product-type business. For every $100 in product sales revenues, $30 to $40 is spent on manufacturing; another $25 to $40 is spent on selling, marketing, R&D, and administration, leaving a net operating profit margin in the range of $15 to $25. The point of leverage in this business is to design a great set of products and manufacture thousands if not millions of them at a low cost per unit. Such businesses often require huge capital outlays for production capacity. Using our example of A123 Systems again, this venture raised about half a billion dollars in 2009 to develop manufacturing capacity, about ten times the amount raised for its research and development of the batteries.

Now consider the typical systems company. For every $100 of revenue, $20 to $30 might be spent on R&D; another $10 to $20 is spent on sales, marketing, and administration, leaving a net operating profit of $50 or more. At least, that is the goal! The point of leverage for a systems company is to hire the smartest programmers, have them create fantastic software, and then ship it electronically with virtually no cost of goods. The high profit margin enjoyed by this type of business explains why software continues to draw heavy venture capital investments.

Services companies aim to be product and systems *agnostic*. They are consulting firms, equipment service firms, transportation services providers, home health care providers, energy

production and management firms, and so forth. Most are labor intensive. Thus, for every $100 of revenues, a typical services firm spends a third on labor; a third on technology, marketing, and administration; and tries to walk away with $33 or more in operating profit. Its point of leverage is the design of the service, the people who deliver the service, and the technology that helps them deliver the service efficiently and effectively. Think of the UPS drivers in your area and their handheld devices. UPS's combination of people, trucks, and information technology is its secret for profitably delivering more than 18 million packages a day!

In short, the three basic types of businesses—product-focused, systems-focused, and services-focused—are completely different in terms of what they do and how they make money. Their points of leverage are also entirely different. You can learn about the revenues, costs, and margin profiles of companies operating in your target industry or sector through Yahoo! Finance and similar sources. Look up the industry leaders and examine their income statements.

Making the Choice of the Business Type for Your Venture

And so, having selected an industry and screened various possible target sectors in that industry, you must now decide, "What type of business do I want to have?" Apple's decision in the mid-2000s to shift some of its energy to a service business—iTunes—demonstrates the power of type choice on earnings and company value.

Most entrepreneurs make the "type" decision by considering internal factors and the analysis they used in screening industries:

- For which type of business do I have the experience and education needed to succeed?
- What am I really good at? This is not only in terms of creating a product or system or service but also in terms of *selling* the innovation.
- Do I want to create a new product or simply integrate different products together within a system or service? Am I most comfortable with the idea of providing a service?
- Which type of business in my chosen industry sector is in greatest demand by customers?
- For which type of business is there the least direct competition?

Time is another issue to consider in making the choice of business type. The longer it takes to generate revenues, the more difficult it will be to obtain financing—and the greater the risk for the entrepreneur.

As a general rule, product companies seem to take the longest time to move from business idea to first paying customer. A unique and appealing product must be designed, prototyped, customer tested, and manufactured. Even a simple product can take 18 months or longer to move to market. Medical products can take much, much longer! Systems companies tend to face a one- to two-year run-up to workable product: lots of software development and iterative testing, a beta site with a few lead users, and then it's off to the races. Service companies, on the other hand, can start providing services right away if the team is right and be making money soon thereafter. Time to market is not the only consideration, of course; make a great product and there is far more leverage on time and effort and capital than all but the best of services businesses. Software can be even better.

*** *** ***

In this chapter, you learned the importance of gathering information on the attractiveness of industries and the sectors within those industries. Successful entrepreneurs use information to drive their venture decisions. It is critical that you use objective information to determine if the innovative concept you have in mind also has the makings of being a good business, the foundation of which is to compete in a growing, attractive market space. Do not let your passion for an idea get in the way of applying common business sense to find those areas where your experience and industry dynamics combine to make for a promising journey.

Reader Exercises

Now it is your turn to apply the venturing scoping ideas of this chapter to help shape your own entrepreneurial vision. The following exercises should be done sequentially.

Also, a few words about student project teams. This type of work is often performed in teams to emulate the venture team startup process. If you do recruit team members for a project, have a separate discussion off-line in terms of roles and responsibilities. Do this early in the project so that everyone understands the amount of "skin in the game" that each team member is willing to contribute. Then, have a process for reviewing each other's work.

This commitment to getting the work on time is so important. You don't want to have people join your team just because they think your idea is "cool." They must be willing to work because it is only through that work that your venture idea will continue to improve. As a fledgling entrepreneur, you do not have the time nor should you have the patience to carry noncontributors on your back.

Now on to the assignments for this chapter. It is time to define your venture scope!

Step 1: Each Team Member Needs to Complete Figure 1.8

Put down your specific work and educational experience as well as family history events. After each team member does this for themselves, you then need to assemble a composite list for all team members. Just as important as what is on that list, note in a different color (such as red) those items in terms of skills and work experience that appear to be missing for a successful venture. If you have gaps, don't let these stop you. However, these will also help direct you in terms of what new team members you need or which other professors or advisors you might seek out in the weeks and months ahead.

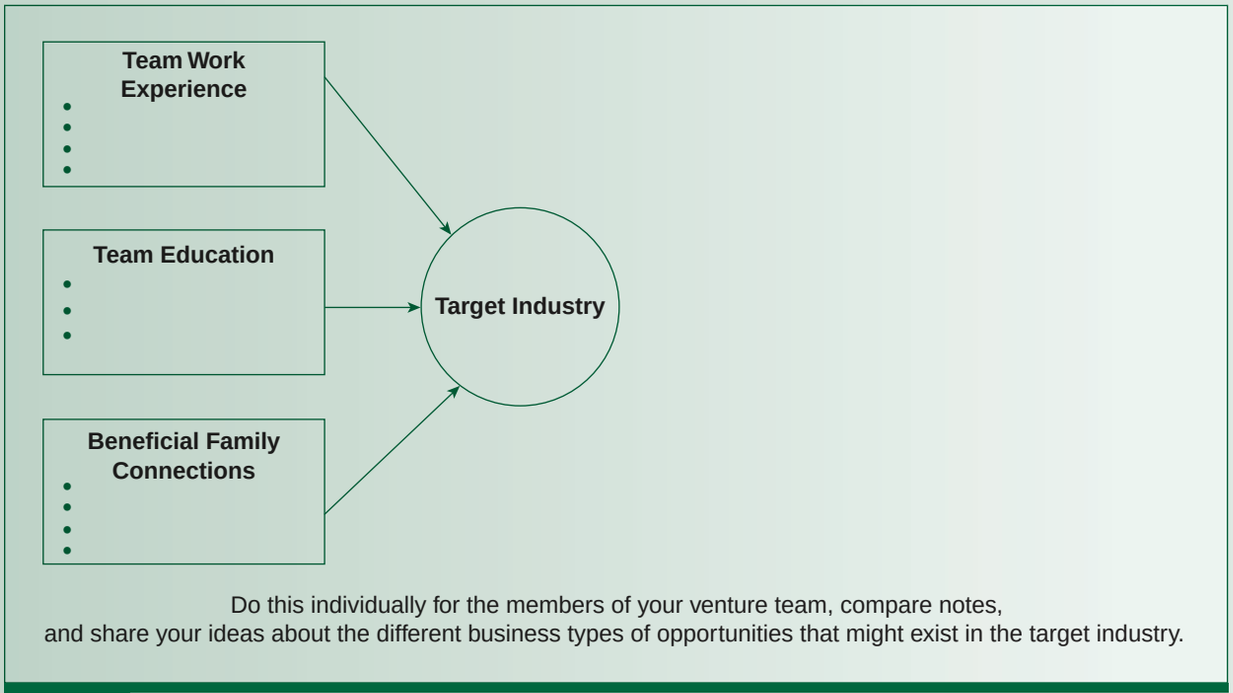

Figure 1.8 Entrepreneurial Background Template

Step 2: Conduct a Target Industry Analysis

This is a very important exercise. You need to search the Web and other data sources for information regarding your target industry. This includes hard numbers of the profitability of current market leaders and some intensive research on technology changes, channel changes, and competitors entering your target industry sector. You also need to search sources such as *MoneyTree Report* (http://www.pwcmoneytree.com) to see the current flow of angel and venture financing into that sector. Examples of industry sectors might be biotechnology, software, medical devices, energy, media and entertainment, networking and equipment, or health care services.

Then, once you have gathered these data, we want you to score the attractiveness of each dimension in Figure 1.9 for your industry sector. Then, make an honest assessment of this data-driven analysis. Is the sector a good place to start a venture? Does it have favorable industry dynamics or not?

	Facts / Data About Your Target Industry (Bullet-point facts)	Industry Score (1–10)
Market growth		
Profit potential for the sector (or) Operating margin of sector leaders		
High rate of technological change and new products		
Flow of venture financing		
Presence of clear channels to customers		
A lack of concentrated competition		
A lack of offshore entrants driving down prices		
A lack of barriers to gain access to channels		
A lack of barriers to gain access to suppliers		
A lack of concentrated customer buying power		
	Total Score	

Figure 1.9 The Industry Dynamics Scorecard

Scoring Key: 1 to 10, where:

1 is "a tough barrier for a new venture," 3 is "a challenge," 5 is "neither a barrier nor supporting success," 7 is "conducive to a new venture," and 10 is "an ideal setup for venture success."

If the assessment score is low, you might wish to consider strongly looking at a different industry or a different sector of the industry that interests you. Otherwise, you need to have a serious discussion about how to overcome the negative dynamics you have uncovered. When it comes time to raise money from professional investors, assume that they know the potholes just as well as anyone else. What seasoned professionals try to find are "show stoppers," defined as an industry dynamic that makes even a well-managed venture hard to grow.

Step 3: Conduct an Environmental Scan for Your Target Industry

Figure 1.10 presents an environmental scanning to further enrich your target industry sector analysis. Pay particular attention to the five key dimensions of environmental scanning: changes and trends in the social, economic,

technological, competitive, and regulatory conditions surrounding your venture concept. Record these with references to supporting data sources directly on the template. Then, try to identify venture opportunities that take advantage of or respond to these trends. Remember, trends can be either positive or negative from the end-user's point of view. A venture can be positioned within a larger trend—and from that "ride a wave" toward success. Ventures targeting the aging population, environmental regulations on energy production and consumption, or obesity are examples of "matching venture opportunities."

Trends	Over-Arching Examples	Venture Opportunities
Social	• Look for aging, health, ethnic, and other socio-demographic trends	• Make a list of matching venture opportunities
Economic	• Look for macro-economic trends such as globalization and economic cycle	• Make a list of matching venture opportunities
Technological	• New, disruptive technologies • Current and emerging "standards"	• Make a list of matching venture opportunities
Competitive	• Offshore competitors • "Plays" by large corporations through acquisitions	• Make a list of matching venture opportunities
Regulatory	• Regulation/deregulation • "Green" regulations • IP protection in emerging markets	• Make a list of matching venture opportunities

Figure 1.10 The Environmental Scanning Template

This template will be useful when you get to the point of discussing the venture with your professor or advisors. It will demonstrate that you have done your homework and that you recognize both opportunities and dangers on the horizon. Revisit your venture concept statement with the environmental scanning template in hand. Does it still make sense? Which if any of that statement's four elements should be revised or otherwise improved?

Step 4: Draw the Ecosystem Map for Your Target Industry

Identify all key players within the ecosystem. If there is financial information on the Web about these key players, gather it and look at their revenues, their revenue growth rates, their operating margins, and the even the number of employees. Begin to get smart about your competitors and potential partners such as OEMs, distributors, and complementary innovators or service providers. As you are doing this, look at their Websites and see if there are management team members who are alums of your university.

Step 5: Have Breakfast or Lunch With an Experienced Entrepreneur, Investor, or Executive in Your Target Industry Sector

A term project is a great excuse to reach out to business people. Students are always amazed at how executives are willing to help young aspiring entrepreneurs. Go to the Websites of local companies that are either members of your target industry sector or investors in new companies in that sector. See if any are alums of your university. Usually there is contact information for high-level managers. Try to use your professor for an introduction. Your assignment is simple: have breakfast or lunch with just one of these individuals. Armed with your industry research, you should bounce ideas off your guest and then *listen*. This will provide a world of information about your target industry sector.

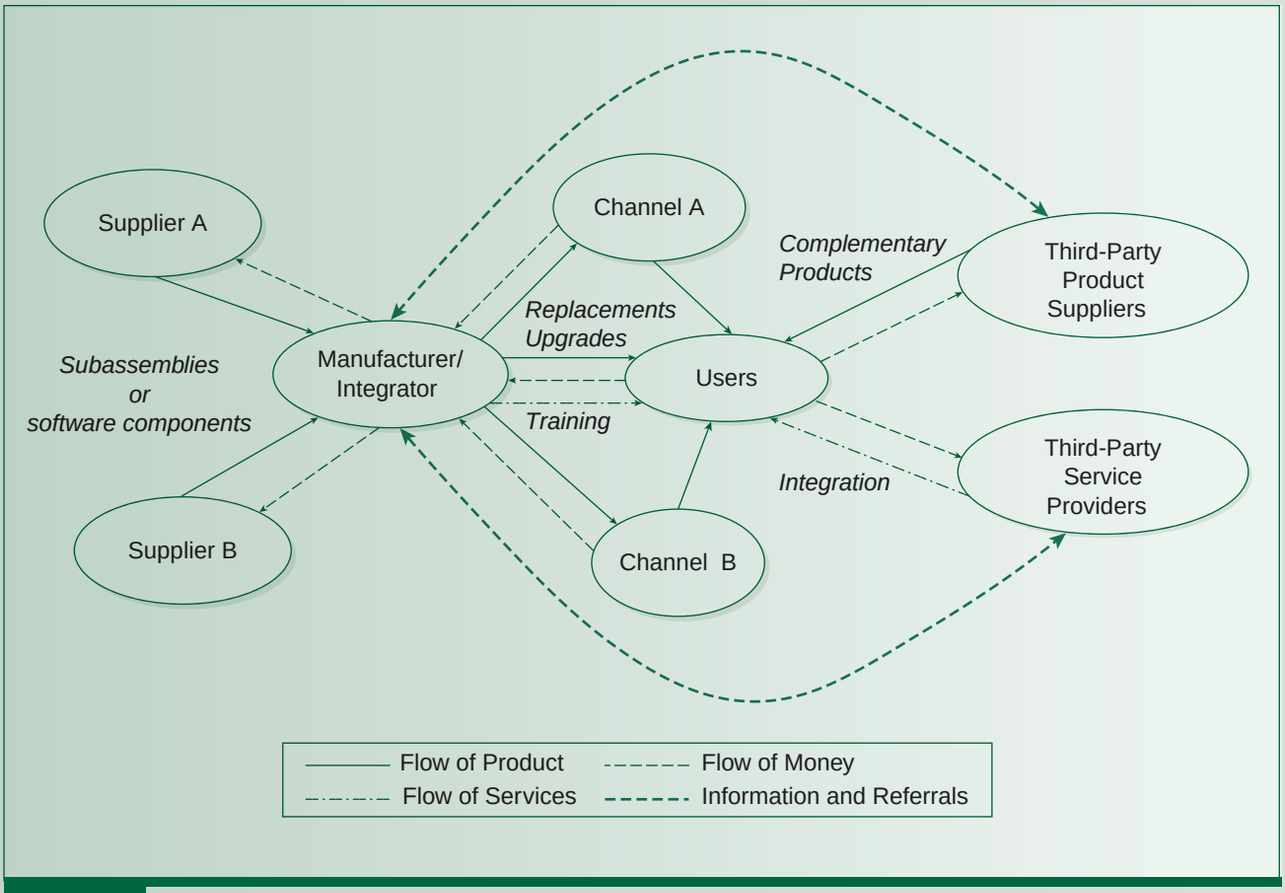

Figure 1.11 The Target Industry Sector Ecosystem Template

Knowledge is power; your job is to get as smart as you can about an industry as quickly as you can. Time is your enemy. Friendly alums can be powerful allies and, more often than not, are willing to help.

Don't worry about how to design and produce these offerings yet; specific planning for that will come later in this book. You don't really know what users truly need at this point, so keep your type of business at a very high or general level.

Step 6: Bring All of This Learning Together: Create Your Venture Scope

Figure 1.12 integrates all of the prior work into a set of venture opportunities. Based on your personal work/education/family network background, your target industry sector analysis, and your environmental scanning, you should now be able to identify several or more venture ideas. At this point, you don't need to get too specific about the products or services in these venture ideas. Instead, focus on what they will do—or the value they will bring—to users in the industry sector.

With these venture ideas placed in the template, we then want you to circle that idea which is your favorite one. Be prepared to explain why it is the favorite based on your industry analysis. The following chapters in this book will help you refine and test that venture idea.

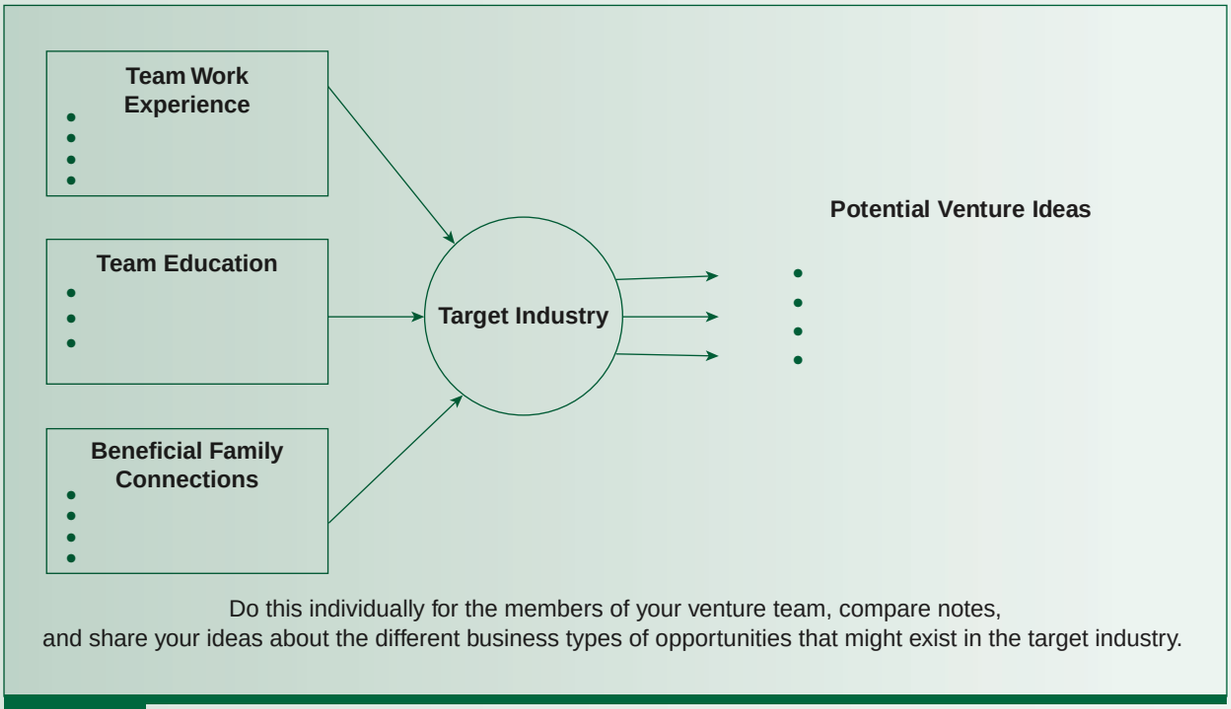

Figure 1.12 The Venture Scope Template

Great work! You have now created your "venture scope"—the definition and boundaries of the venture that you want to create. Now it's time to get feedback on your templates. Your professor will organize an in-class presentation session where you can share your ideas with the rest of your classmates and benefit from their experiences and insights. Be prepared for some people wanting to join your team or you wanting them to join.