

4. Feasibility Analysis.

How do you find out if your idea is feasible?



Can feasibility be determined?

- If feasibility can be determined, then what is the best way to do that? This problem has been a subject of extensive research by various persons, and several ways have been developed that try to create the best approach.
- In the traditional, or “causal,” approach, feasibility is determined through a number of primary and secondary research activities that might include creating focus groups, interviewing customers, and then writing a business plan codifying the results.
- Others have suggested that this serial approach is too deterministic and confining and that other methods might give better results.
- The main critique of the traditional approach is that it undervalues the role that prior experience and resources play (effectual entrepreneurship) as well as underestimating the need for flexibility and rapid changes of direction (the pivot as defined in the lean launchpad).
- We will look at several alternative approaches as well as the most common traditional approaches and try to allow the reader to draw from each according to their particular needs and interests.

Feasibility in Context

Doing a feasibility study is a key aspect of any new venture or product line. As we will see in the case study of Segway, failure to do a good feasibility study can be fatal to even the very most talented and well funded entrepreneurs.

Here is the process that is often described as that of a “Causal Entrepreneur.”

- Recognizing a business idea
- Testing the **Feasibility** of an idea
- Writing a business plan
- Launching a business plan

- **Wow! Is that over-simplified!**
 - Sure sounds easy.
 - But the Feasibility step is critical. Rushing to the next stage without first doing some kind of feasibility study is often a disaster.

Effectual Entrepreneurship

- Saras Sarasvathy, a professor in the Darden School of Business at the University of Virginia, proposed an alternative to “Causal” or traditional approaches to entrepreneurship.
 - The casual approach sets goals and then tries to plan and find the resources necessary to reach the goals.
 - The effectual approach inventories the resources available to the entrepreneur and then sets goals based upon that.
 - <http://www.effectuation.org/sites/default/files/documents/what-makes-entrepreneurs-entrepreneurial-sarasvathy.pdf>
- She started her work as a graduate student at Carnegie Mellon University
 - Her advisor was the Nobel laureate Herbert Simon
- She interviewed 27 successful entrepreneurs out of the 45 who responded to her 225 requests to interview about their approach to business.
 - Each had at least 15 years of experience, had started several companies, and had taken one or more public.

Inc Magazine observed:

- <http://www.inc.com/magazine/20110201/how-great-entrepreneurs-think.html>
- *“Brilliant improvisers, the entrepreneurs don't start out with concrete goals. Instead, they constantly assess how to use their personal strengths and whatever resources they have at hand to develop goals on the fly, while creatively reacting to contingencies. By contrast, corporate executives—those in the study group were also enormously successful in their chosen field—use causal reasoning. They set a goal and diligently seek the best ways to achieve it.”*
- *Asked about how he would do targeted marketing studies one responded that “I wouldn't do all this, actually. I'd just go sell it. I don't believe in market research. Somebody once told me the only thing you need is a customer. Instead of asking all the questions, I'd try and make some sales. I'd learn a lot, you know: which people, what were the obstacles, what were the questions, which prices work better. Even before I started production. So my market research would actually be hands-on actual selling.”*

Effectuation

- Based upon her study of these 27, Sarasvathy created the alternative formulation that is now known as Effectual Entrepreneurship.
- Effectuation is the name given to the process that she discovered was being used by the entrepreneurs.
- They were uniformly negative on market research.
- They were very skeptical that the future could be predicted.
- Because of this they felt that detailed planning was not helpful
- They wanted to jump right in and learn from the experience.
- One can critique her study because of the small number of respondents and also because the problems presented were in a specific domain of the educational market.
 - An N of 27 is a small number compared to the universe of entrepreneurs
 - It is hard to know if these results may be domain specific or whether they are transferable to very different domains.
 - Additional research in other domains could provide the model more support.
- None the less, the model does seem to agree both with the data and with the experiences of many.

An Alternative Viewpoint-Effectual Entrepreneurship

There are those who have studied entrepreneurship carefully who have criticized the causal process as much too deterministic. Life is simply not that orderly! They have proposed an alternative formulation that they term “the effectual entrepreneur.” In their formulation there are five major principles:

Bird in Hand – Who are you? What do you know? Who do you know? What do you have?

Affordable Loss –Limit risk by focusing on the downside and knowing what you can afford to lose when you go after the upside.

Lemonade – Use your lemons to make lemonade. Use the bad news as a clue to what might work in new markets.

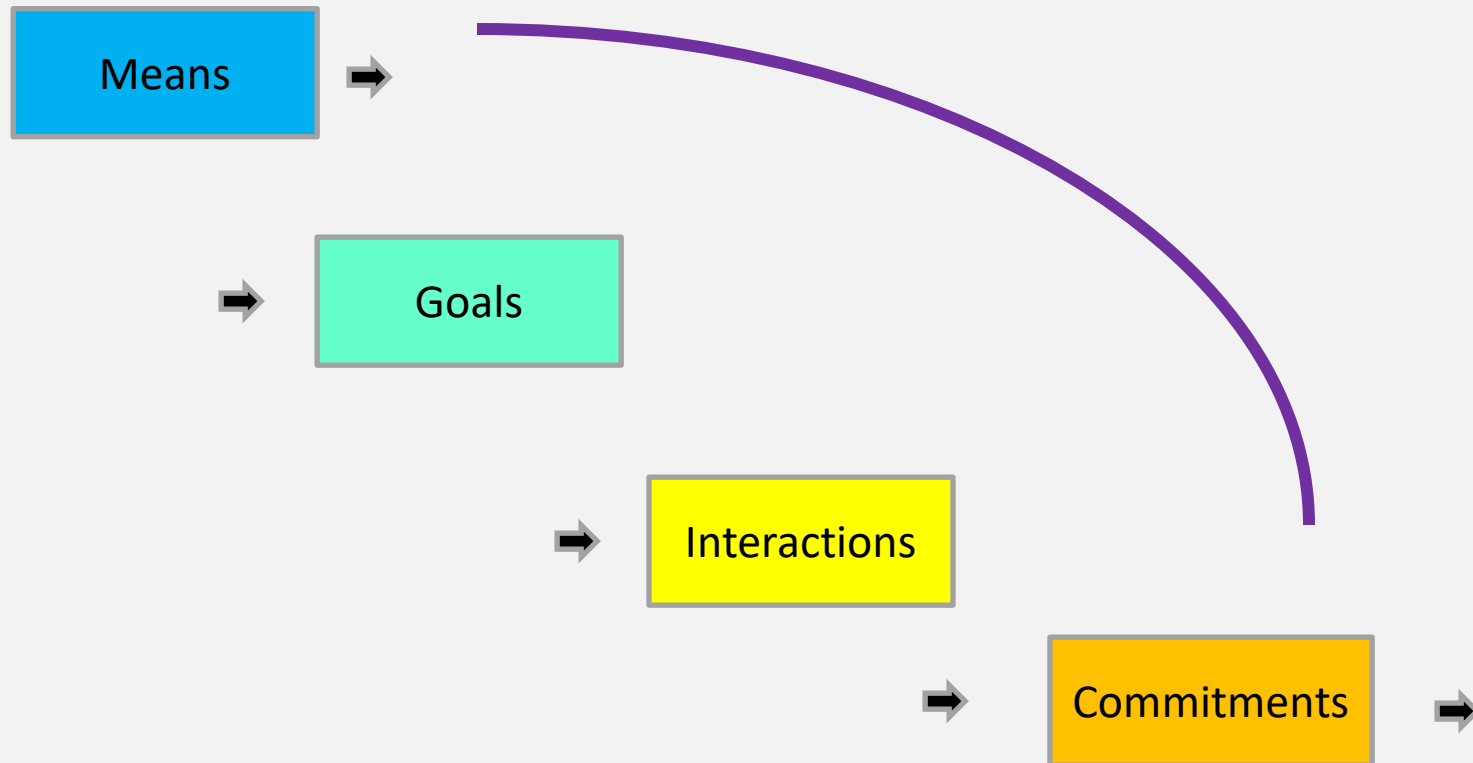
Patchwork Quilt – Form partnerships. Working together can increase the probability of success through co-creation of new markets.

Pilot in the Plane –Control rather than predict. The future is created rather than found or predicted.

- <http://www.effectuation.org/sites/default/files/documents/effectuation-3-pager.pdf>
- <http://www.imd.org/news/Creating-entrepreneurs-that-create-opportunities-the-Effectual-Entrepreneurship-textbook.cfm>
- see also “Effectual Entrepreneurship”, by Stuart Read, Saras Sarasvathy, Nick Dew, Robert Wiltbank and Anne-Valérie Ohlsson
Routledge Publishing; NY, NY (2010).

Effectual Entrepreneurship -the Process

- Rather than a causal chain of events, this formulation sees a continuously interacting series of means, goals, interactions, and commitments which lead to new means and new goals and can develop new markets.



Effectual Entrepreneurship (EE) vs Causal Entrepreneurship (CE)

- To some extent the proponents of EE have created a “straw person” out of CE proponents –who were never as rigid as they are portrayed.
- On the other hand, they have done a great service in reminding anyone interested in entrepreneurship that it is NOT a rigid linear process. It is a messy process of interactions, experiences, and relationships.
- The research is clear: entrepreneurial ventures almost never follow the path originally envisioned, and the ability to pivot, when new information arises, to follow new directions is a hallmark of successful ventures.
- Furthermore, they have codified some of the messiness and even made more comfortable those of us who exhibited the traits that they enshrine as being positive.
- Nevertheless, we will not abandon, in this course, the approach of causal entrepreneurship, but we will use the techniques with our tongue firmly planted in our cheek as we know that, as EE has shown, the process is not linear.
- An aspiring entrepreneur will meet with investors, advisors, employees, customers, and potential partners who will expect to see the kind of planning (and even business plans) that are characteristic of CE. You will need to know it.

The Lean Launchpad

- In a future chapter we will introduce the concept of the lean launchpad, as it is used in the National Science Foundation iCorps Program to encourage scientists and engineers to move their research into the marketplace through entrepreneurship.
- You will no doubt notice the similarities to the approach and the conclusions that Steve Blank reached in the development of the lean launchpad.
- Sarasvathy is a scholar who has done a careful study and published her work in peer reviewed journals to be evaluated and perhaps substantiated (or refuted) by her peers.
- Blank is a serial entrepreneur of some success who draw on his personal experiences and is a consumer of research rather than a producer. His formidable marketing skills have made the lean launchpad a hot topic around the world.
 - <http://www.forbes.com/sites/steveblank/2013/06/18/the-lean-launchpad-educators-course/#df15d0d43a74>

A hybrid approach

Can we develop a hybrid approach that recognizes the strengths and weaknesses of the two formulations?

Many years ago, I began to teach employees that I supervised, and entrepreneurs that I mentored, to follow this mantra:

“Plan, plan, and then plan some more. Once you think you have a great plan, step back a bit and ask yourself what you are going to do when the plan doesn’t work.” In fact, as the EE research shows, be alert to the failures. There is a message there.

I vividly recall trying to explain that to an employee in 1982 who was planning a very complicated scientific meeting involving over a thousand people who were discussing scientific issues that were not well understood at the time. When she showed me her detailed plan for the meeting, I repeated the mantra above. Unfortunately, she became highly insulted and offended because I *“did not trust her judgment.”* When the meeting failed to follow her detailed plans, she became so upset that she left the meeting. She did not understand that her judgment was just fine. It is the world that is too complex to be accurately predicted.

That is why the ability to watch, listen, learn, and pivot is the most important skill for entrepreneurs.

And that is exactly what EE tells us. Proponents are making a grand effort to create an alternative formulation. I cheer them on –but still teach entrepreneurs how to make business plans –for now.

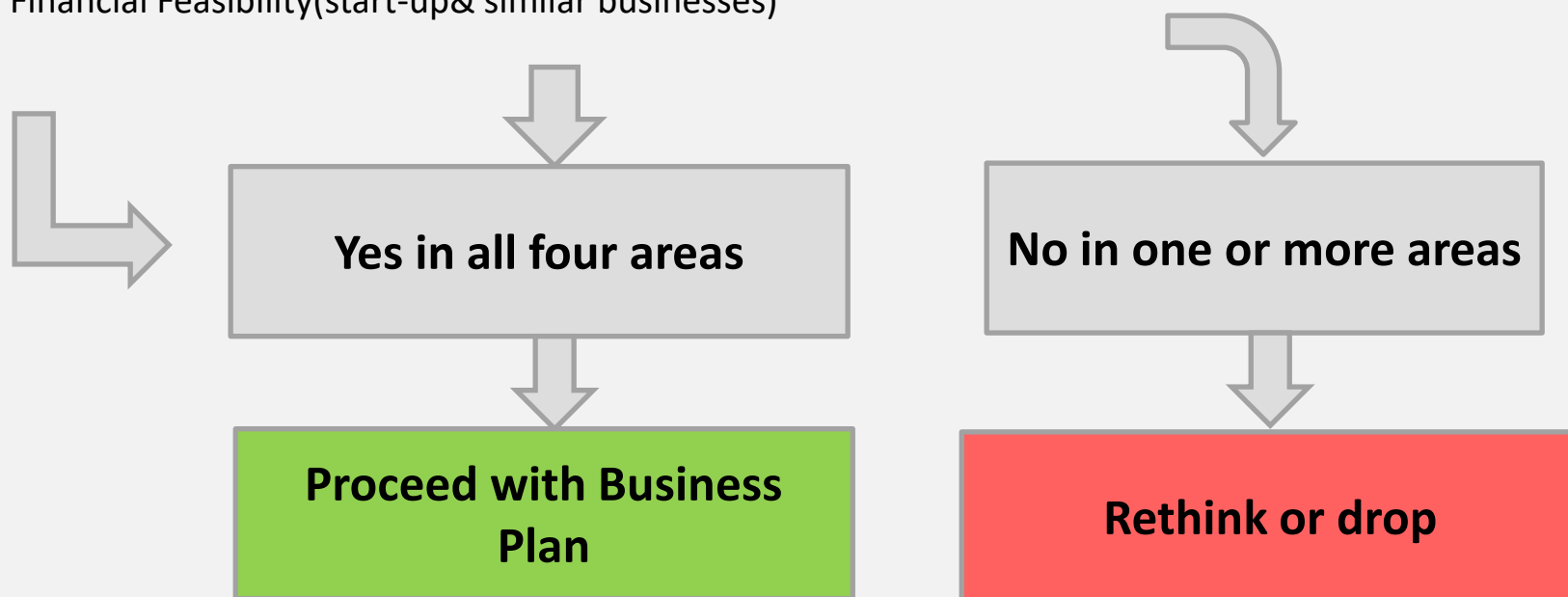
If a venture capitalist, angel investor, or bank asks an entrepreneur for his/her business plan, telling the investors/lenders that he/she is a great pilot who is watching the market and ready to pivot at any time is unlikely to impress them.

On the other hand, once you get started, you had better understand that the EE picture of the world is the world that you are about to live in.

Proposed Business Venture

So then how would one begin to consider a new opportunity? A good start would be to begin to evaluate the opportunity according to the following list of activities.

1. Product Service Feasibility (desirability and demand)
2. Industry/Target Market Feasibility (attractiveness of both)
3. Organizational Feasibility (Mgmt&resources)
4. Financial Feasibility(start-up& similar businesses)



If you cannot come to a positive conclusion on all four areas then you either must drop the idea, rethink the venture, or find a way to fix the weak area of feasibility.

Caution –Nobel Prize winning research: Irrational Decisions

- Here are a few of the sources of irrational decision making:
- **Confirmation bias**- Confirms an existing bias. If you already believe something, you will notice evidence to support the belief and ignore that which contradicts the belief.
- **Overconfidence** –Research says that we all think we are above average. Sometimes we call that the “Lake Woebegone” effect. (Where all of our children are above average.)
- **Availability bias** –if it is easy to imagine than it must be common! You have seen news stories on shark attacks (or terrorists) so you think they must be common. They are not.
- And the reverse (black swans –I’ve never seen a **Black Swan** so they do not exist.) Look for evidence and not just for what we expect.
- **Prospect theory**: Too much importance is given with too small differences. A 1% chance appears much better than zero. It is not A 99% chance appears much worse than 100%. Again, it is not.
- **Priming and the Anchor point**: We can have our expectations set by being given an anchor point. Marketing professionals use the anchor point to set your expectations! It works on even the smartest and most trained people. Research also shows that those smart people vehemently deny that it works on them.
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Nudging

- The 2017 Nobel Prize winner was Richard Thaler of the University of Chicago for his work in behavioral economics.
- His particular contribution, for which he is best known, was in the area of “nudging.” He wrote a book with Cass Sunstein of Harvard entitled “Nudge.” This work builds on the biases revealed in earlier work to nudge people in the direction of a desired decision.
- Marketing departments use his work to nudge you toward a decision to buy their product.
- Governments use his work to nudge you toward making better decisions (quit smoking, drive slower, eat less sugar, get vaccinated etc) –at least from their perspective!
- <https://www.economist.com/blogs/freeexchange/2017/10/2017-nobel-prizes>
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Avoiding irrational decision making

- It is critically important for any leader to recognize these sources of potential error and take steps to avoid the disasters that have often ensued when other leaders failed to take them into account.
- You can begin by understanding the sources of error and then consciously reflecting upon them when you are making decisions. Ask yourself:
 - **Am I making this decision based upon information that confirms my existing biases, or have I sought out contrary opinions?**
 - **Am I overconfident in my ability to do what I intend to do?**
 - **Am I assuming a result is likely simply because I have heard it often, or do I have evidence that it is statistically likely?**
 - **Am I assigning too much importance to small differences?**
 - **Am I being fooled by being attached to some anchor point when I should really question the anchor point.**

You need trusted advisors with different and diverse views

- This latter point can be clarified by considering the case of a car dealer who suggests that “the retail value of this car is \$50,000.”
- Later, after beginning the sales process, the salesperson suggests that “I think I can get this car for you only \$45,000.” Check the **anchor point** and do not be fooled. Look at the internet sales prices and you might find that the car usually sells for \$45,000. Most of us think that we are immune to such manipulation, but research indicates that anchor points work with even the smartest and most skeptical of us.
- You should also recognize that you probably cannot do this yourself (Avoid the over-confidence bias). You need to create a team around you that is not afraid to question you and argue with you.
- Those who do not like to be argued with often make the worst leaders.
- Have employees and advisors that will help you avoid these Nobel Prize winning mistakes of behavioral economics.

Research

The research that entrepreneurs must do to evaluate the feasibility of a venture is often divided into two categories based upon whether they do the research directly or instead collect and evaluate the research that others have done.

- **Primary Research** is that
 - Done by the principal
 - Often through customer feedback, focus groups, surveys, etc
- **Secondary Research** is most often a
 - Review of existing data such as
 - Government data , census data, etc
 - Industry Analysis, trends, experts
- As the feasibility study progresses, the idea may change and be refined and then re-analyzed.

Four areas to look at carefully

1. Product or Service Feasibility

- Desirability and Demand
- Concept Test

2. Target Market Feasibility

3. Organizational Feasibility

4. Financial Feasibility

1. Product Service Feasibility Analysis

- Desirability and Demand
- Desirability
 - Make sense, reasonable, exciting to consumers?
 - Solves a problem, fits an environmental trend, fill gap?
 - Timeliness?
 - Fatal flaws in design or concept?
 - My “favorite” is any idea that violates the second law of thermodynamics! As an engineer and scientist, I would often receive proposals that violate the second law of thermodynamics.
 - **Concept test:** you will need to create a **concept statement** to show to experts and/or customers. The concept statement must include:
 - Product/service description
 - Target market
 - Benefits or value added/created
 - Competitive position
 - Team
 - (At this point you do not need to delve into the financial issues.)

Concept Test

- Concept Statement
 - Description of the Product or Service
 - Can include drawings or prototypes
 - Target market -who and how many?
 - Benefits –how does it add value or solve a problem
 - Position relative to competitors
 - Management team
- Questions that you might pose to those that you show the concept test:
 - Name three things you like?
 - What are three suggestions for making it better
 - Is it feasible?
 - Any there any other comments or red flags?

Product/Service Demand

- Assessing the potential demand for a product or service can be difficult. It is a mixture of vision and research. Standard management recommendations include:
 - Doing a buying intentions survey (a [potential]customer survey)
 - If you are bringing a new product to market, then you need to identify the potential customer group and survey their intentions.
 - If you are introducing a new product to an existing set of customers, then you survey those customers. -plus potential new customer.
 - Library, internet, and person to person or observational research.
- Both are good but.....
 - Steve Jobs' point of view: *"A lot of times, people don't know what they want until you show it to them."* -BusinessWeek (25 May 1998)
 - Clayton Christenson's point of view: *Customer surveys work for incremental innovations but are less useful for disruptive innovations.*
- As you do internet or library research, please realize that all such information must be viewed from the point of view of the "skeptical inquirer." Evidence is critically important, but it **MUST** be evaluated and validated.
- This also explains why Steve Blank introduced the "**Customer Discovery Process**" in the Lean Launchpad methodology. More on that later.

IdeaLab- Knowledge Adventure

- Knowledge Adventure (KA) is an example of primary observational research
- KA made educational software
- Employees were sent to observe customers in stores.
- They discovered that customers exhibited confusion over whether the software was age appropriate.
 - KA used Broad age ranges in an effort to appeal to a broader audience.
 - but that led to customer confusion as to where their child fit in the range.
- KA then decided to grade targeted ages and be very specific
 - In some ways this represents what is often called a “pivot” or change in direction for some aspect of the new venture.
- In the trial they saw huge increases in sales!
 - Customers were reassured that it would work for their child.
 - They also aspired to older games! (After all, everyone’s child is well above average!)

2. Industry Target Market Feasibility Analysis

- Is an industry classified as emerging, declining, young, mature, fragmented, growing, global, or other?
- Attractive Industries are
 - Young rather than old
 - Early in life cycle rather than late
 - Fragmented rather than concentrated
 - Growing rather than shrinking
 - Must-have products and services instead of want-to-have
 - Not already crowded
 - High operating margins
 - Do not depend upon historically low price of a commodity –like gasoline or a food product.
- You want trends (economic, demographic, social, regulatory, etc.) moving in favor and not against.
- Target Market Attractiveness
 - A market that is not too big to attract competitors and not too small to matter. Tommy John custom fit underwear is an example of a carefully targeted market.

3. Organizational Feasibility Analysis

- Management Prowess
 - Here the new venture team is critical.
 - Some founders are reluctant to involve others.
 - That makes their ability to raise funds and go to market more difficult
 - The team needs to have diverse skills to manage aspects.
 - Founders should know what skills they DON'T have.
 - They need to recruit other team members to fill those gaps.
- Resource Sufficiency; a new venture needs:
 - Availability of skilled labor –matched to task
 - Intellectual property that can be protected.
 - Availability of appropriate space-office, lab, manufacturing, warehousing, etc.
 - Access to key suppliers and/or partners
 - Government support or at least permission

4. Financial Feasibility Analysis

- Total Start-up cash. How much and where can you get it?
 - Friends, family and other fools
 - Personal credit –credit cards, home equity, etc
 - Advance sales to customers in a few cases.
 - ILinc LearnLinc used personal funds, future orders, and borrowing against receivables – personally guaranteed.
- What is the financial performance of similar businesses
 - If they are struggling financially, then why are you different?
- Over-all financial attractiveness of the opportunity
 - Projected revenues, what are they?
 - Rate of return, how high?
 - Can you begin to create pro-forma statements of cash flow, income statement, and balance sheets? (most of this is done in detail later)
- Overall
 - Invested capital, how much is required and where do you get it?
 - Risks assumed versus rewards obtained. There are no sure things.
 - What are some other alternatives for investing money
 - What are other alternatives for the entrepreneurs time and effort.

Things you really would like to have

- Steady and rapid growth in sales for the first 5-7 years in a defined market niche.
 - High percentage of recurring revenue. Once a customer is sold, do they continue? Or is it a one-time sale.
 - Ability to forecast income and expenses
 - Internally generated funds to finance and sustain growth.
 - Availability of an exit plan to convert equity into cash
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- Yeah right... And I want a Porsche and a house on the ocean.
 - Good luck.



Next steps

- Now that you think you have a feasible idea, let's look at how to further refine the business model and then look at two alternatives for refining a plan for the next steps:
 1. The Lean Launchpad model and the Business Model Canvas
 2. The traditional business plan that is required by many Business Plan competitions and by many investors.