HEPTALYSIS™

Venture Assessment Framework

a systematic approach to screening investment opportunities in the private sector

- Patent Pending -

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Please note that this document is a work in progress and is meant to encourage and foster additional comments and suggestions. The feedback and comments received may be reflected and further incorporated into this article.

The final version of the article is scheduled to be published before National Venture Capital Association 2009 Annual Meeting.

1. Foreword

Throughout history innovation has been the driving force behind economic growth. Increased competition is fueling the explosive demand for Innovation. Start-up companies and their new products define and set new economic standards. With an ever-changing economic environment, including globalization and competitive landscapes stretched across countries, the rate of innovation and new business ventures is increasing.

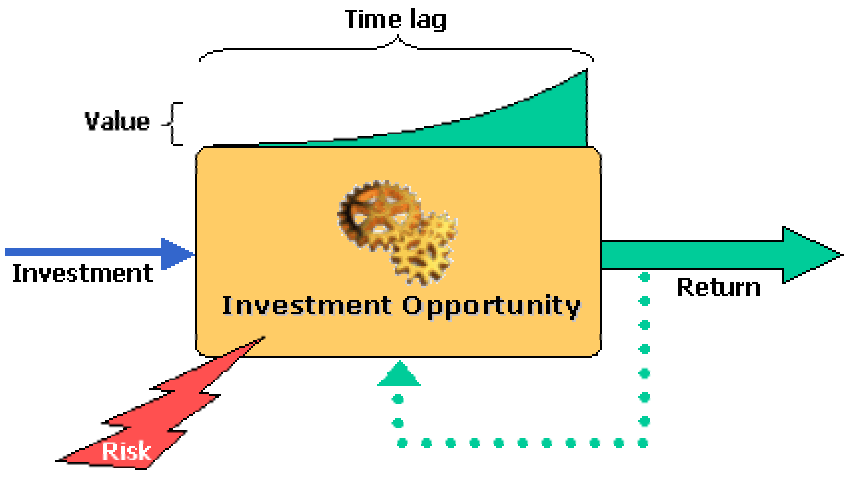
In the battle of ideas those who are well positioned for creating financial gain will succeed . Whether those ventures are created by entrepreneurs as independent companies or are set up by intrapreneurs trying out new ideas inside a large corporation, we will continue to witness an increase in Innovation.

Any new business venture needs financial support to become successful and for the shrewd investor, new ventures can become lucrative opportunities. To capitalize on these opportunities and support the increases in innovation, it is important to improve the efficiency of the investment decision-making processes and provide a reliable and scalable methodology for investors to rely on.

Success is about wise investments and successful investment requires impartiality, consistency, as well as superior judgment and insight. Not only for investors, but also for entrepreneurs is it important to view a venture directly as an investment opportunity and consciously pursue it as such. Whether the resource is money, time or talent that is contributed, every involvee is an investor.

This paper utilizes Knowledge Modeling concepts to discuss the fundamental elements of a business venture and suggests ways to systematize the screening and assessment process for investors and entrepreneurs.

For all practical purposes an investment opportunity can be viewed as a machine that consumes certain resources, and produces a return within a timeline while carrying certain risk.



This general view of Investment Opportunity, as shown in the above diagram, applies to all investments in the private sector ventures. This concept is detailed throughout the paper.

An investment may be made with an expected return of growth or cash flow. The valuation increase as shown above in green symbolizes the growth of the investment.

The time lapse between resource consumption and return will largely depend on the type of industry, company strategy, success in execution and stage of development.

In a perfect world, an investor would ask only three questions before making an investment decision:

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How much is needed?                 (Capital Requirement)
What is the payback?                (Rate of Return)
In what format and time frame?      (Deal Structure, Exit)
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However, in the real world, investors have experienced or heard of cases where investments haven't produced the promises. So they now have to quantify the risk by asking questions such as:

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What do you want to do?             (Idea, Business Model)
How do you want to do it?           (Execution Plan)
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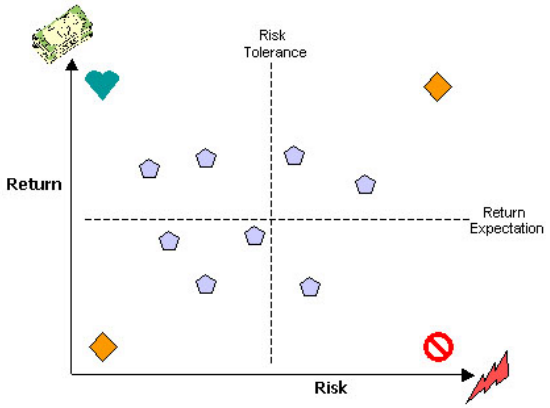
And that is where all the complexity of selection begins . . .

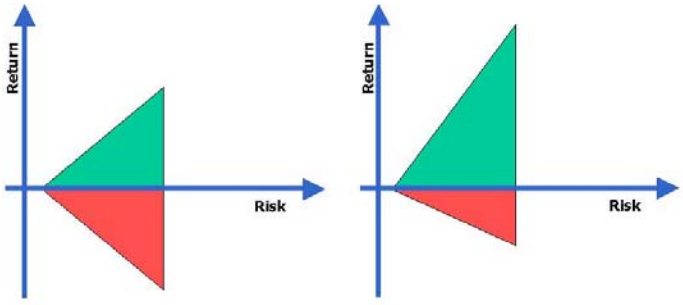
Risk/Reward model – all investment factors drive this universal model.

The concept of investment is embedded within the "Risk/Reward" model of wealth creation. It is commonly accepted that a higher risk tolerance correlates to a higher potential of reward.

The following diagram illustrates possible opportunities in relation to their Risk/Return ratio.



Of course any investment involves certain level of risk. However a sound investment decision should incorporate a calculated risk. As the level of risk increases, the range of possible returns on the investment widens as shown in the diagram below.



Noteworthy, the quality of an investment opportunity is not determined only by its level of return, but also by the certainty of its risk level. In other words not every low yielding investment is a bad investment and vice versa.

The calculated level of risk is usually the biggest driver for an investment's required rate of return. The riskier the investment, the higher the rate will be in evaluating whether the expected payoff will be sufficient. The table below shows what one dollar of investment will need to grow to given the level of risk and expected time to a liquidity event. For a highly risky investment requiring a 60% annual rate of return, the payoff in one year needs to be 23% higher than a less risky investment that requires a 30% annual rate of return (1.6 / 1.3 - 1). Because the payoff for investing in a private company often takes four or more years to realize, it is important to recognize that as the riskiness (required rate of return) of alternative investments increase, the size of the payoff grows at an even faster rate for multi-year investments. At four years, the payoff on an investment requiring a 60% rate of return will need to be 129% higher than the investment that requires a 30% rate of return.

Future Value Factors				
Rate of Return	Time between investment and payoff in years			
(Risk Level)	1	2	3	4
60%	1.60	2.56	4.10	6.55
30%	1.30	1.69	2.20	2.86
*return=investment * (1+IRR)^years*				

Ideally the risk/reward values are reasonably known and predictable. However for early stage businesses that is usually not the case.

Because of the impact risk has on the size of the payoff over time, it is important to try to measure the uncertainty of an investment outcome. How does one go about doing this? The best way of answering this question is by using stochastic methods for calculating expected return and distribution variance.

Expected return is defined as the sum of probability of each possible outcome (probability distribution) multiplied by its payoff. Expected return represents the average return one "expects" to receive if investments with identical odds are repeated many times. A situation with expected return of zero (no net gain nor loss) is called a "fair game".

For example, assume that the potential return on investment (ROI) in a Start-up company is predicted as followed:

Probability	**ROI**
10%	500%
15%	100%
25%	0% (*Breakeven scenario)*
50%	-100% (*Loss of investment)*
Expected Return	15%

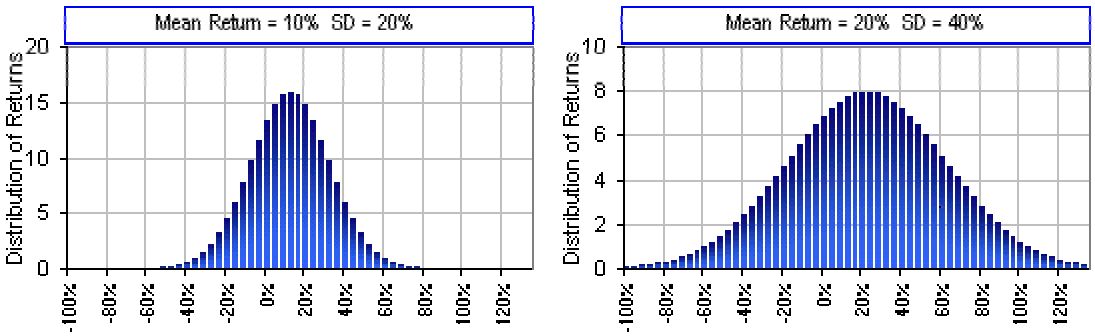
That will translate to an expected return of 15% as detailed below.

(0.1 * 5 + 0.15 * 1 + 0.25 * 0 + 0.5 * -1)

The variance and standard deviation describe the dispersion (spread) of the potential outcomes around the expected return, which correlates to degree of uncertainty or risk.

The larger the spread » The higher the risk

Variance is defined as the sum of probability of each possible outcome multiplied by squared deviations of each outcome from expected return.



Usually no investment is undertaken unless the expected rate of return is high enough to compensate investors for the perceived risk of the investment.

The required return is composed of “risk-free” rate of interest plus several premiums that reflect inflation, the riskiness of the investment, and liquidity of the investment.

This relationship can be expressed as follows:

Required Return = Riskfree Interest Rate + Inflation Premium + Risk Premium + Liquidity Premium

Riskfree Interest Rate = the real risk-free rate of interest is the rate that would exist on a riskless investment if zero inflation were expected.

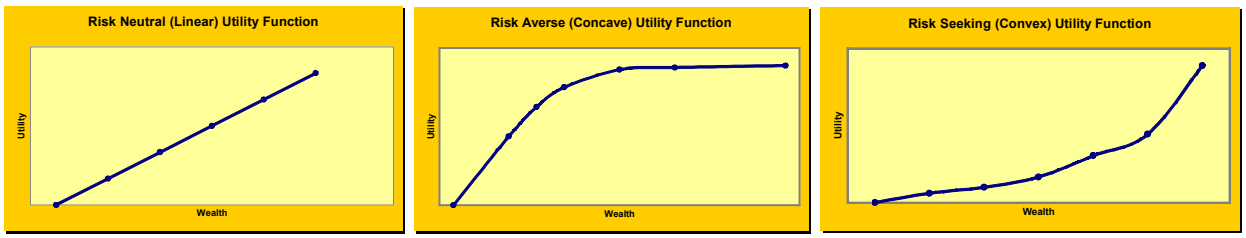
Inflation Premium = IP is equal to the average expected inflation rate over the life of the investment. The expected future inflation rate is not necessarily equal to the current inflation rate, so IP is not necessarily equal to current inflation.

Risk Premium = This premium reflects the possibility that the investment will not pay interest or principal at the stated time and in the stated amount. Risk Premium is zero for U.S. Treasury securities.

Liquidity Premium = This is a premium charged by investors to reflect the fact that some investments cannot be converted to cash on short notice at a "reasonable" price. Liquidity Premium is very low for Treasury securities but it is relatively high on very small firms.

It is to consider that risky investments rarely produce their expected return; they earn either more or less than what was originally expected.

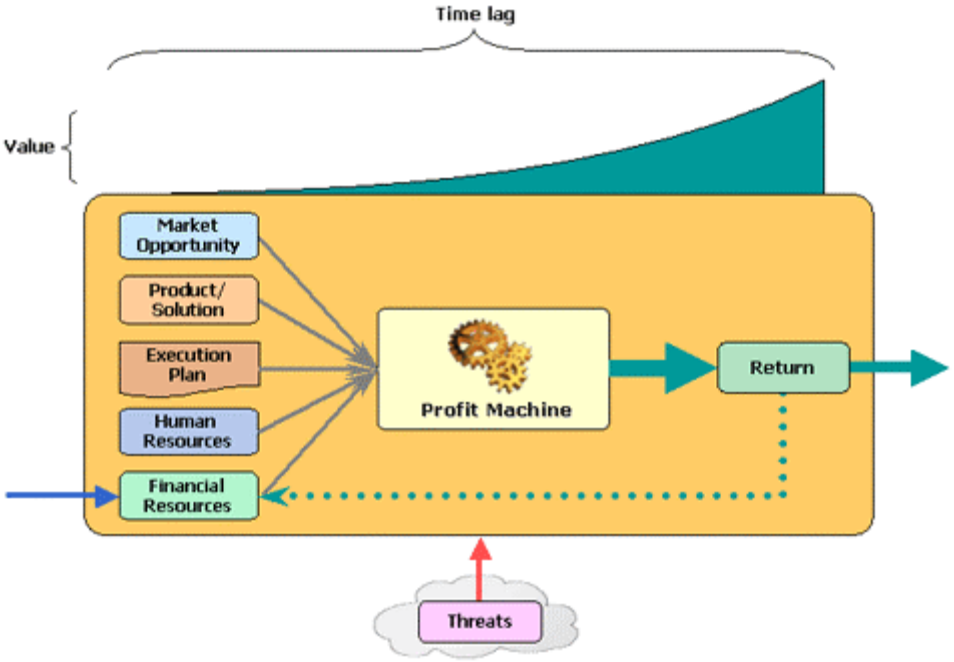
Investors’ risk tolerance varies depending on their expected return and size of investment compared to total wealth. Referred to as “utility function”, this can be presented as a graph similar to the ones shown below. Accordingly investors may leverage syndication (pooled funds) to overcome constraints applied by their utility function.



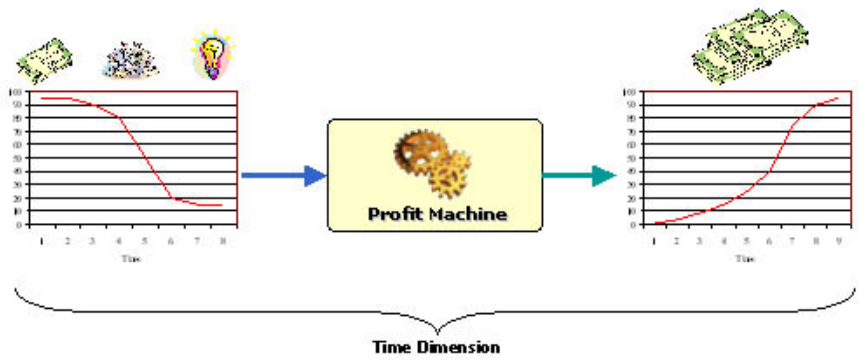
In general assessing risk is a complex issue because there is a myriad of factors involved. In the venture and corporate investments the number of contributing attributes as well as the complexity of risk assessment is much higher. There are factors involved such as market needs, feasibility of the solution, management's ability to execute and barriers to entry. A careful examination and breakdown of composite elements is the first step to gather needed insight required for decision-making.

2. The Venture – A Profit Machine

For purpose of this paper we break down a business venture into seven fundamental elements contributing to its expected outcome.



A venture works just like a profit-making machine, consuming various resources as input and producing a certain financial profit as output, presented as "a function of time". Even though it may sound obvious, many still ignore the time dimension and make investment decisions based on a two-dimensional snapshot in time.



The time dimension and type of return vary depending on the stage, type, and strategy of a venture. Investors should always keep the timeframe and return type in focus. The return can be immediate or delayed and manifested as growth or cash flow.

The venture's management team is responsible to plan for maximum profit and minimum risk and prove to Investors the plan's validity.

3. Assessment Elements

Investment decisions are based on risk/reward ratio. However unless potential risk and reward can be accurately estimated it is very hard to make a sound judgment.

The purpose of investment screening is to determine the fitness of an investment opportunity with respect to specific investment preferences. It helps to qualify the potential rate of return and quantify the associated risks.

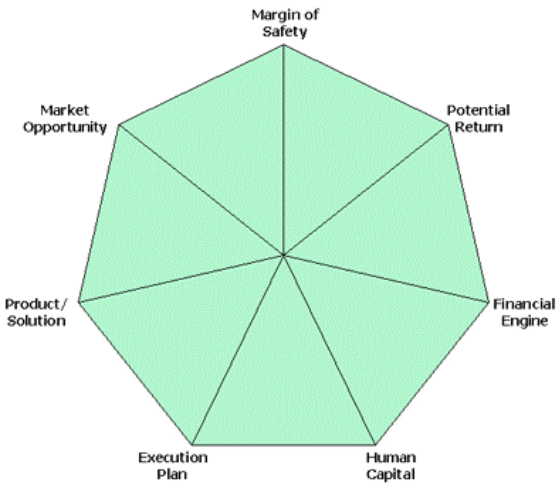
A systematic investment screening and assessment methodology not only assists investors in making investment decisions, it also helps entrepreneurs in their planning process.

Proper assessment is about moving from uncertainty to likelihood and certainty.

To assess a venture with a systematic approach, all contributing elements have to be examined independently; that is,

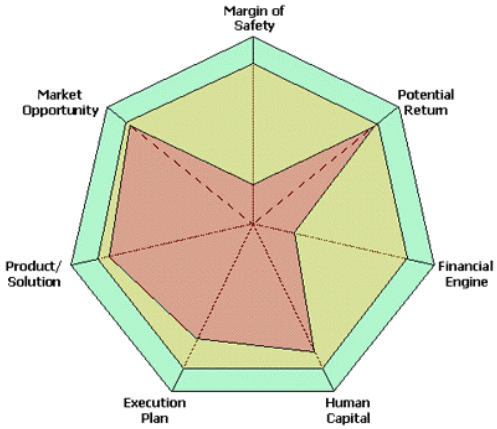
1) Market Opportunity
2) Product/Solution
3) Execution Plan
4) Human Capital
5) Financial Engine
6) Potential Return
7) Margin of Safety

A heptagonal spider graph is used to visualize the results of the venture's assessment. Each axis in the graph represents one of the contributing elements.



The model will show how well each of the seven elements contributes to the total success of the venture.

The set value along each axis represents the viability of such element. A graph is constructed so that a perfect investment opportunity corresponds to a fully symmetric heptagon as shown below in yellow. However most investment opportunities will have a deformed shape like the red-shaded area.



The specific value of each contributing element is produced by answering specific questions and to score the element's ability to fulfill the desired promises accordingly. These questions are slightly different depending on industry and revenue stage of the venture. If in a specific case the element is not applicable, the user should assess it as a full score.

In the following section each assessment element is individually described and reviewed. For a more accurate reading each element is broken down into sub components, which collectively produce a judging of the main element.

3.1 MARKET OPPORTUNITY - IS THERE A REAL OPPORTUNITY?

"I like opportunities that are addressing markets so big that even the management team can't get in its way." ~Don Valentine from Sequoia Capital

Many businesses fail, not because the entrepreneurs didn't work hard, but instead because there was no real opportunity to begin with. There are many different definitions of what a market opportunity is, but generally speaking a market opportunity is a need or want that is not being met by the current competition in the marketplace. A business cannot simply add features a customer does not need, or solve problems that were not problems to target customers.

A market opportunity has to be large enough and exist for a long enough period to be attractive. For a true market opportunity, the opportunity must continue in a sustainable way to allow for profit and continued success of the investment.

Not every market opportunity needs to be in a market where there is no competition. When Google entered the search market in 1998, there was already a dominant search engine, Yahoo, as well as other competitors. Google's market opportunity was instead making a search engine that greatly improved results over the competitors and allowed more people to turn to a search engine to find what they needed on the web.

A market opportunity must be analyzed to determine if it is real and substantial. The following sections assess the viability of a market opportunity.

3.1.1 Vivid Pain or Desire – What problem will the business solve?

Unless there is a clear description of the problem on hand, the company will easily become distracted from their mission. If this occurs team members will start working as individuals and on different aspect of the problem. A clear problem description will keep team members focused on the goals of the company.

Also, a business has to be able to clearly articulate the pain and problem to customers so they understand the value added and why they should invest in the product or service offered.

Companies that do not focus their efforts on the pain or desire faced by a company can often run into problems. Many startups founded by engineers fall into a "creeping elegance" trap. They keep developing increasingly better features, without first selling the more-than-adequate initial products. That can easily push small technology companies into bankruptcy, as all their money is spent on tweaking the product, rather than selling it.

It is important to know:
How big is the pain/cost of not having a solution?
Those who have the problem, are they aware that they have the problem?
Will those who have the problem accept a solution?

3.1.2 Lack of Suitable Solution – What is wrong with the other solutions in the marketplace?

Other solutions in the marketplace must be investigated in order to both evaluate the size of the market opportunity, as well as to understand the strengths and weaknesses of the competition which customers will ultimately compare to a business's solution. The value of a solution can also only be measured by comparing it to its potential substitutes and their degree of fitness. No matter how far the current solutions are from being a remedy, they will all be considered as reference points and competition in the customers' view.

It is important to know:
How is the problem being solved today? (Maybe using one or a multiple of already existing solutions)
If many, are those new or mature solutions?
What are the differentiators?

3.1.3 Clear Target Market – Who will use the organization's product?

There has to be a clear description of target customer and users. It is important to differentiate between the customers who pay for a service and the users who use a service. While they often are the same, in some cases they are different. A clear example is Google, who has users that use their Google search engine, but customers who pay for the ads, which appear from their searches.

The customer and user have to be understood so that their needs, wants, and problems are understood. Also, it is important for a business to understand a customer and user's views. Same product can have different tangible and perceived value for different markets.

Even if a product/solution would fit the needs of multiple market segments, it is not practical for a startup to try capturing all those market segments right away because they do not have the resources to do so. Clear targeting helps in better planning and more accurate projections.

It is important to know:
Is there a clear definition and well-defined profile of the target user and customer in place?
Who pays for it? Who uses it?

3.1.4 Demand Validation – How does a business know the product is needed?

There should be a clear distinction between what potential customers want and what the founders (or engineers) "think" the customers should have. Regardless of how good an opportunity seems, until there is a validation, everything is based on an entrepreneurs assumptions. While common sense may qualify an idea as an opportunity, market conditions may reject it for various reasons.

Market research is crucial for evaluating opportunities. For evolutionary products, if research data exist the market might already be too mature for startups to enter. For revolutionary products however, there is no market data, as the market does not yet exist. The most reliable way of conducting market research is by living and breathing the market itself – by interacting with customers and other market participants.

It is important to know:
Is there a validation that a market demand exists?

3.1.5 Sustainability – How long will the market opportunity last?

Startups are betting on market stability or a positive trend. Unless the trend lasts long enough for the startup to profit from, there is no point of going after it. This is another aspect of market research. A business must determine that their customers will stay with the company and be customers into the future. Also, a business must evaluate if the economy is fit to keep paying customers willing to buy their products and solutions.

It is important to know:
Is the target market stable or growing?
When and why is the market window open?

3.1.6 Market Timing – Is the market ready for the product?

Market timing is everything. A great product is worthless if the market is not ready to buy it or if the market has become saturated. It is crucial to be ready when the customer is ready.

Once the market for a new product is established, its window of opportunity opens, and new entrants flow in. At some point, the market matures, and the window of opportunity for new entrants closes.

There are specific challenges for being the first in a new market or last in a mature market. The company has to be aware and prepared for the challenges. If an entrepreneur is entering a new market, they have to be prepared to convince customers or users the product or service is needed, worth the money, and worth the time to use. If an entrepreneur is entering a mature market, they have to be able to convince customers they have something new and innovative such that it is worth it for customers or users to switch.

It is important to know:
Are the target customers 'ready' to buy without any aggressive demand creation requirement?

3.1.7 Mission and Vision – Does the organization have a clear mission?

Startups are formed when people come together and choose to invest for greater return. Not only does an investor give their money, but the entrepreneur invests their money, time, brainpower or reputation. Regardless of whether you're an investor or entrepreneur, everyone is investing something and needs to have the same vision. In startups every single contributor counts and if aligned "the whole is going to be greater than the sum of individuals".

Regardless of good intention lack of direction may neutralize others' efforts. Imagine people in a boat paddling in opposite directions! Every company has to be set with a clear and resonating mission, following a vision. It has to be understood, agreed and followed by all participants.. A clear mission statement also includes a clear idea of what the startup will NOT do.

It is important to know:
Is there a clear vision and mission statement in place that targets the opportunity?

3.2 PRODUCT/SOLUTION – IS THERE A VIABLE SOLUTION?

The solution can be an idea, technology, product, service, or a business model that will take advantage of a market opportunity. This assessment will verify that the solution directly addresses the market opportunity in a feasible way, and that the solution offers a benefit such that target users will accept it.

It is important that solving a problem does not add another problem. This was the case of pets.com, a company that went from startup to IPO to liquidation in less than 2 years. They made ordering pet food very simple, but at the same time customers had to wait for delivery and had to pay higher delivery costs which made their products unattractive. When the dot-com bubble burst and their revenues didn't grow as expected, they were forced to shut their doors.[1]

The market opportunity should always be kept in mind when evaluating a product or solution. The product or solution should always map directly back to the market opportunity that a business wishes to exploit. Businesses often fail because they begin solving problems that are not a part of the market opportunity and thus are unneeded solutions.

It is important to know:
What are the product descriptions and product differentiations?
What needs are addressed?
What is the definition of a unit? What exactly will be sold?

3.2.1 Clear Value Proposition – What value does a business give its customers?

Value proposition describes the single largest influence on the buying decision. Startups should be able to describe it in very few sentences. This should be thought of as an "elevator pitch" for customers. Very quickly an entrepreneur should be able to describe how their product or solution will help a customer. An entrepreneur must describe their value proposition both in terms of what the customer receives from the product or solution compared to its price, as well as what the customer receives from the product or solution relative to the other competitors in the marketplace.

It is important to know:
What is the product description and differentiations?
What needs are addressed that are not addressed by the competition?
What is the definition of a unit? What exactly will be sold?

3.2.2 Market Acceptance – Will customers accept the solution?

"Feedback is breakfast of champions"– Management adage

No matter how good a solution, it has to be accepted by its target market in order to become successful. A business must evaluate how well it's product or service solves the market problem. Understanding market acceptance is also more than whether the market wants a solution to their problem. More importantly, a business must find out what the market is willing to pay for a solution.

Real world example:

The collapse of Iridium LLC is perhaps the largest startup failure in U.S. business history. Iridium was a 1990s era phone company that developed a satellite-based, worldwide phone service. The tough technical problems were daunting, but solved. The huge and expensive undertaking of building and getting the satellites into orbit was knocked off. Expenses ran into the billions. Smart money was brought

in, including Bill Gates and Craig McCaw, the cellular phone pioneer. The service was turned on. And no one bought. No one.

The issue? A very fundamental one. It turns out, even though the service was built in the time of portable cellular phones, the phones themselves were very large in size and the use charges were astronomical. All that could have been identified with some basic market validation without billion dollars of investments.

It is important to know:
Does the solution really fulfill the market need/demand without any side effects?
Do those who have the problem agree that the solution is a good one?
Do the target users accept the solution with reasonable adoption rates? And is the market willing to pay for it?
Are there beta customers committed to "pay" for the product or service?

3.2.3 Proof of Concept – Is the product feasible?

Hoping that engineering management will make a business profitable is generally not a good idea. Engineers are focused on improving the product's technology and not on selling the product. However, engineers are the engine of innovation for the product and responsible for bring the vision into life. These innovators also need to evaluate the feasibility of a product or solution. If a solution or product is only some concept based on some new technology, it needs to be proven that this product or solution could be brought to the marketplace in a viable way.

The assessment questions identify how realistic the proposed solution is and if it is conceptually proven, or feasible to be implemented.

It is important to know:
Is the solution being proposed technologically possible?
Is the technology ready for commercialization, or is there still basic research to be done?
How many months are needed to achieve revenue on a production-ready product?
Are the technical risks identified and are there sufficient resources budgeted to overcome them?
How significant are technology and product development risks?

3.2.4 Sufficient Benefit Over Substitutes - How is the solution better than others in the marketplace?

Having developed a great product is not enough. The job is not done until target customers actually perceive the differences between their product and the competition. A business must make sure customers fully understand the differences between their product and competitors' product and perceive those differences as valuable. While some of this effort will be in marketing, a business must analyze the competitor's products, their own product, and the customers' needs in order to understand what benefits their product offers over the competition.

To customers cost is not just in the product, but also in training, and other changes that may be required to use the product. This must be kept in mind when evaluating a product's benefits over substitutes. A product may have many advantages over the competition, but if there are too many barriers to adoption the product will never sell.

It is important to know:
Does the solution present a clear benefit compared to alternative solutions already in use or available today? Is there sufficient customer perceived value to yield attractive gross margins?

Does benefit outweigh the cost and risk? Or does it solve one problem and adds another one for customers?
Has everything that requires the solution to work been considered?

3.2.5 Holistic Supply Chain – What is needed to create the product?

The coordination of activities, information and resources involved in producing the solution in physical or virtual manner has to be fully considered. If a product depends on other resources in the marketplace, a full understanding of the supply chain is needed so that risk can be managed.

This means more than just having a supplier who can supply the goods and services needed. The suppliers' dependability must be evaluated, and if a company is forced to deal with an undependable supplier, backups should be in place so that production can always continue.

It is important to know:
What has to be in place for the company to successfully produce the product/service?

Are all needed supplies identified? Who will be the major source of supply? Who will be the backup suppliers? How much time will it take to get the supplies in?

Has the company established arrangements with leading suppliers?

What pre- and post-sales support and service (warranties, training, repair services, etc.) will customers demand and can this startup meet that demand?

3.2.6 Regulatory and Legal Protection – What are the legal & regulatory hurdles of the product?

For startups, early identification and planning for potential risks can mean the difference between success and failure, especially in the pharmaceutical area. Depending on the market, there could be a number of regulatory and legal hurdles that can stand in the way of success. Understanding any current patents in the market, or governmental organizations that regulate a market or industry is key when evaluating a product's viability.

It is important to know:
Are the liabilities that the solution poses and potential regulatory requirements taken into consideration?

Are there governmental or political factors that may delay or block sales (i.e. FCC spectrum allocations, EPA waivers required, FDA approvals, etc.)?

3.2.7 Product Roadmap – How will the solutions and products evolve and expand?

A "one-trick-pony company" may succeed in the short-run. However, investors prefer platform business models, which allow companies to deliver products and services beyond their initial offerings as follow-up products, services and new products. While a startup may begin with one revenue generator, it is important for a business to have a plan to expand their products and solutions, and to grow as their business does to fit the needs of the customer. In most cases, one product can only get so much market-share, and more growth can come only through offering a family of products for a family of market opportunities.

It is important to know:
Will the product or service not become obsolete quickly?
Are there obvious follow-on products or supplementary services that the company plans to offer?

3.3 EXECUTION PLAN – IS THERE A REALISTIC PLAN TO EXECUTE?

"You cannot manage what you cannot measure." – Management adage

Each organization needs to establish a strategic framework and a tactical execution plan to obtain significant success. The execution plan will allow your team to understand how you are going to achieve your goals. It also will allow you to break up your business into more manageable parts for which each individual in your team can be responsible. Furthermore, the execution plan should include ways to monitor progress and make sure the organization is on track to achieve its goals. A monitoring system allows the organization to take corrective measures sooner rather than later. The execution plan also ensures that your team members are focused on the same goals and are moving in the same direction.

The execution plan is only a part of a larger business plan. The execution plan focuses more on the day-to-day aspects of the business and on the steps needed to achieve the larger business goals. A business plan describes those steps but also outlines the larger business goals that the organization hopes to achieve.

The execution plan should cover:

Strategic Path
Sales and Marketing Plan
Development and Production Plan
Partnership & Alliances
Resource Planning and Allocation

3.3.1 Valuation Growth Plan – How will the business grow?

In addition to managing production and sales, entrepreneurs have to plan for continuous increase of the company's value.

Extraordinary value can be created through intangible assets. Intellectual capital and other intangible assets are recognized as the most important metric and foundation for the market dominance and continuing profitability of successful companies. Among others, customer base, partnerships, intellectual property, market expertise, and brand awareness contribute to a business value. All of these assets may not currently generate revenue and profit for a company, but are seen as keys to revenue generation and profits for the future.

It is important to know:
What is the strategic plan for increasing the company's value and accumulating intangible assets, regardless of immediate financial gains?
And what tactical moves are planned for achieving that?

3.3.2 Marketing and Promotion Plan – How will customers learn about the product or solution?

A marketing plan describes how the product/service is promoted in the marketplace and how to ensure it generates attention. Often in a business started by engineers, business efforts like marketing will be overlooked, with the thinking that "the technology will generate attention and sell itself." This sort of attitude can doom a company with good technology but a market that is unaware that they exist. Besides direct marketing, startups may leverage partnerships to collaboratively promote the product/service to the market.

It is important to know:
Is there a clear marketing plan and budget in place to reach the target users and customers and is it executable?

Has the company correctly assessed the customers' buying criteria?
What are customers' sources of Information?
- Magazines and other publications
- People in the industry
- Market surveys
- Similar but not competing businesses

How do customers buy competitive or substitute products now (direct sales, wholesale, retail, manufacturers' reps, direct mail, catalogue, etc.)?

Are there any strategic partners signed up or are there some in discussions? (Partner Math: 1 + 1 > 3)
Are the go-to-market and penetration strategies defined and realistic?

3.3.3 Sales and Distribution Plan – How will the product or solution get to customers?

Entrepreneurs generally fail to consider distribution channels until it's too late. Similar to other "business side" aspects of a company, this too can be overlooked if there is too much focus on the product on not on how to get it to the customers. Many companies with great products fail regularly because of poor channel selection, development or maintenance.

Startups need to decide whether to sell directly or through intermediaries. Distribution channels need to have sufficient coverage to reach an adequate number of customers but also be cost effective to develop and maintain.

It is important to know:
Are the customer acquisition methods, the main sales and distribution channel defined?
Are the sales life cycle and processes identified?
Are major sales channels open to the company?
Are there any strategic partners signed up or are there some in discussions?
What is your cost to acquire a customer?

3.3.4 Production and Quality Plan – How will the business ensure quality of production?

Another important aspect of assessment relates to production and quality control plan.

It is important to know:

Are the research & development processes defined and well understood?

Are production/manufacturing requirements determined?
Are there any quality control processes in place?
Can the product/service be developed in a reasonable time?
Is the product/service scalable and expandable?
Are the cost estimates and cycle times realistic for production?

3.3.5 Compensation Plan – How will members of the team be compensated?

People are the most important asset and the key success factors of a startup. That includes team members, advisors and business partners. They all have to be inspired, motivated and properly rewarded for a venture to succeed. While larger companies can often survive when members leave, small companies depend on their employees to understand both their customers and their product, and can't afford members leaving. Compensation should do more than just encourage team members, advisors, and business partners to stay, but should motivate them to work in the interest of the business.

It is important to know:
Are key members of the team sufficiently motivated by stock-options or profit-sharing and compensated based on individual and company's performance?
Is the Entrepreneur willing to use equity to attract talent and share success?
Is there sufficient equity remaining in the options pool for 2-3 years of added employees, service providers and suppliers based on similar startups?

3.3.6 Resource Allocation – How will the limited resources of the business be allocated?

For startup companies the biggest dilemma is usually about inadequate resources. There never seems to be enough time or money to achieve all the things a company wants to do. Because resources are so scarce, inappropriate resource allocation is one of the most commonly made mistakes by entrepreneurs. A startup must clearly prioritize all the different aspects of their business so they can take the appropriate steps to ensure that resources are allocated properly.

It is important to know:
Are adequate resource requirement analysis, planning and allocation done?
Does the resource allocation match the production, marketing and sales plan?
Are enough resources allocated for the valuation growth path?

3.3.7 Milestones and Measurements – How will the business measure success?

As Mark Twain famously said: "The secret of getting ahead is getting started." The secret of getting started is breaking your complex overwhelming tasks into small, manageable tasks, and then starting on the first one.

The execution plan has to outline the milestones and proper measurement systems for tracking the progress. These milestones will help an organization prioritize their work. Also, if an organization falls off schedule it may reveal weaknesses, which are better to know sooner rather than later.

It is important to know:
Are there clear goals, milestones and timelines in place to ensure the overall venture execution and progress?
Are there plans for monitoring and measuring performance?
Are all stakeholders aware of key performance measurements?

3.4 FINANCIAL ENGINE – WOULD CAPITAL INFUSION MAKE IT HAPPEN?

Mapping out a finance strategy is a vital and often overlooked part of business planning. It's easy to project growth in sales and staff, but until those sales are made and paid, where will the cash come from to buy raw materials, pay salaries and provide overhead? It is this planning that will allow a business to stay afloat early on when it is the hardest to survive.

The capitalization of a business is satisfied by its internal cash flow generation or through external capital infusion. Mapping out this cash flow early on allows a business to survive to achieve its long term goals and at the same time evaluate its current expenditures.

The assessment process has to cover existing and projected cash flows, capital requirement and detailed allocation of proceeds. It can reveal the company's long-term strategy for making money, or uncover potential places a business is inefficiently allocating their resources.

That includes:
Historic and forecasted P&L (first two years by quarters)
Projected cash flow (first two years by quarters)
Current balance sheet
Projected head count by functional area

3.4.1 Reasonable Initial Expenses – What funds are needed to get a product into the market?

Initial expenses are usually defined as the amount of money needed to develop an idea into a finished product, set up office, develop corporate identity, buy equipments and tools, and set up inventory before beginning the actual production, sales and marketing activities.

Initial overspending can burn working capital that may be needed for marketing or pay future salaries as the business grows. Also, these initial expenses usually occur when money is scarcest. While the business has to project a professional image and attract customers, spending has to be realistic and conservatively planned.

It is important to know:
Are startup capital requirements reasonable?
How long will it take to recover the initial costs?

3.4.2 Moderate Fixed Costs – What fixed costs are needed to maintain the business?

The heavy burden of fixed costs (overhead) is mainly contributed by salaries, lease, maintenance fees, and marketing expenses. If a company wants to expand, its fixed costs should account for its growth... The resource allocation outlined in the execution plan should align properly with the fixed costs.

It is important to know:
Are all potential expenses identified and categorized?
Are the burn rate and residual expenses reasonable and accurately projected?
Has the cost structure been established and does it compare with companies in similar business areas in terms of percent of sales for R&D, G&A, and selling & marketing expenses?

3.4.3 Scalable Variable Costs – What costs increase with an increase in business?

Variable Costs include the cost of goods sold (materials, supplies and delivery) and its direct labor costs (i.e. customer service), which represents the business productivity. Of course, productivity and variable costs are inversely related, so the variable costs will decrease as the productivity increases. Not only should an entrepreneur keep variable costs under control now, they also should have a plan to keep variable costs at a reasonable rate as the company grows.

It is important to know:
Are all production and distribution expenses identified and categorized?
Are the variable costs scalable and proportionally reduced with business growth?

3.4.4 Manageable Debt and Obligation – What debt does the business have?

Not all startups are debt-free. Companies with a great deal of long-term debt introduce additional risk. While going into debt can sometimes help companies that use the funds to invest wisely, a careful examination of debt is necessary when evaluating investments.

It is important to know:
Are there any existing debt or commitments?
What does it take for the company to recover from such commitments?
What are the terms and conditions of lenders or prior investors?

3.4.5 Available Cash and Survivability– How much cash does the business have?

At the early stages, a business is like an egg that has not yet hatched -- and the incubation process can be expensive. The assessment process has to provide a clear picture of available, accessible and required cash for the company. Not only does a company need cash and a good plan of how to spend it, this plan also needs to be in sync with several other parts of a company's self-analysis. First and foremost, there should be enough funds to allow the company to ship a product that goes to market. Secondly, there should be enough funds to allow the company to ship the product when the market opportunity is ripe. Many times entrepreneurs want to engage in an emerging market, but if there isn't enough cash to keep the business alive until the market emerges, it will obviously fail.

It is important to know:
Is the required cash flow in place and can it be achieved as planned?
Would the plan have sufficient cash in place to buffer potential hiccups?

3.4.6 Value-adding Use of Funds – How will using funds add value to the business?

Beware; it is very easy to spend money. There is really no room for excess of any kind in a young business. A well-designed business plan will demonstrate how the capital inflow will continuously increase the shareholders' value. There has to be a strong justification for use of the proceeds, especially early on in the company's development. An entrepreneur must have a clear spending plan to justify investment.

It is important to know:
What is the capital requirement and how will it be used?
Would its use directly contribute to company's valuation?
Would the sought investment be sufficient to move the venture to the next level (milestone or financing round)?
What will happen if the expected amount can't be raised?

3.4.7 Defensible Future Capitalization Need – What funds will the business need in the future?

For many reasons startups may plan multiple rounds of financing. Such a decision might benefit the company and investors if carefully planned. However, it could also create unnecessary dilution and put the company at risk if mismanaged. Again, a capitalization plan must be mapped out carefully and every use of funds should have a direct impact on profitability.

It is important to know:

Are there any future capital needs anticipated and potential capital infusion planned?
Are the projected times to breakeven and profit realistic?
Would the plan have sufficient buffer to survive potential delays in the next round?

3.5 HUMAN CAPITAL - CAN THE TEAM EXECUTE?

"Coming together is a beginning, staying together is progress, and working together is success."
~ Henry Ford

One of the most important assets of a business is its people, which include the management team, key employees, board members and advisors. No matter how good an idea, in the end the team will be the reason for success or failure of a business. If key personnel are missing in the beginning, the Entrepreneur should outline how those positions will be filled in the execution plan.

Engineers found many technology startups providing a solid technical foundation; however this can often lead to weaknesses in other areas of a business. Problems can arise if the management team cannot achieve goals in marketing, sales and finance. However it should also be noted that hiring the wrong executive could be very costly, even fatal, for a small company.

Ultimately investors are dealing with one person, Entrepreneur, CEO or leader. A good leader will build and maintain the harmony between team members. The commitment and passion of entrepreneurs is infectious and the best ones are able to form teams with deep common bonds who are motivated to achieve the team's goals.

The leader is required to have specific characteristics such as:
Decision making ability
Resource management skills
Intellectual honesty (honest with themselves)
Bold self-confidence
Willingness to take risks
Sense of vision and ability to execute
Stress tolerance
Fiscal responsibility
Result (and not action) oriented

3.5.1 Confidence and Commitment – Is the team committed?

Every great startup needs someone who walks through walls to make their vision a reality. They are the ones who have the guts and fortitude to undertake enormous risk and fully commit themselves to achieving incredibly lofty goals, and who also have a strong belief in their own ability to achieve those goals. A company will always be surrounded with problems - such as a lack of funding, too many competitors, etc. - but the organization needs a leader with the confidence to overcome these problems and make a product that consumers want.

It is important to know:
Does the entrepreneur genuinely want this role or is he/she just along for the ride?
Is he or she confident and committed to make their vision a reality?

3.5.2 Persistence & Focus – Is every team member aware and focused on their role?

Too many entrepreneurs fail to maintain their focus and try to be all things to all people instead of focusing solely on those things that add the most strategic value to their companies and developing the

skills that will put them at the leading edges of their market segments. Many times engineering companies will begin adding features and making a system they don't have the capacity to support when all their customers really need is the core solution delivered in a reliable way.

It is important to know:
Is the entrepreneur determined and focused enough?
How does he/she handle failure or situations that do not develop as planned?
Has the team met previous development milestones? If not, why?

3.5.3 Objective & Rational – Can the team objectively evaluate the business?

"It is not the strongest species that survives. Nor the most intelligent. But the one most responsive to Change."
~ Charles Darwin

The biggest problem is when you have an entrepreneur who is sentimentally attached to his company to the point where he won't let go and accept help. Very few companies will be able to succeed from the singular efforts of one individual. For many, it will require help from both the internal team as well as partners and mentors who may have been through a similar process. Having a large variety of opinions will allow a team to be more aware and responsive to changes in technology, the customers, and the marketplace.

It is important to know:
Is the leader coachable and willing to sacrifice and compromise in favor of the venture? Does the team understand their weaknesses?
Is the team willing to take advice or bring in professional management if and when required?
Does the team have realistic expectations?

3.5.4 Ethics and Integrity – What are the guiding principles of the company?

Entrepreneurs, team members and their investors should view their relationships "like a marriage". They will have to get along for a long time and they have to operate from a common set of guiding principles in an atmosphere of trust, integrity and respect. If trust and respect is lacking, a team will quickly devolve into a set of individuals acting in their own self-interest. With all of the other challenges facing a startup, an organization has little chance of success with team members acting as individuals.

It is important to know:
Does the Leadership value integrity and demonstrate superior ethics?
Is there anyone who might question their integrity?

3.5.5 Motivation and Alignment – Are stakeholders aligned with the company's objectives?

Alignment of objectives between management accelerates value creation. On the other hand, misalignment, which happens when team members have different interests at stake, can easily cause problems. .

Needless to say, alignment is required between all stakeholders. For example investors may be part of different rounds of financing. One may require selling the company for $20M to turn a profit, while another needs the company to sell for $50M to justify the investment. Again, the need for a leader who

communicates the goals of an organization is important. Investors, employees, and managers all must know what the goals are for the company.

It is important to know:
Are the personal motivations and goals of the team members known and aligned?
Do the key team members have some skin in the game?
Are the team objectives aligned with business strategic goals?

3.5.6 Roles and Responsibilities – Is there a balanced team?

It's not just the people - it's the team. Investors look for a balance between all the key functions. The members of a team have to offer complementary skills and experiences. If the team is not fully in place, the founder should have a clear description of missing key positions, and ways to fill those positions.

It is important to know:
Are the roles and responsibilities clearly defined and complementary?
Is the board composition wisely selected?
Does the team work together very well? Do they agree on their roles, both short and long term?
Does the team cover all the functional areas needed for the stage they are at?
Are there enough communication skills, negotiation skills and charismatic personality available in the right positions?

3.5.7 Skills and Experience – What is the expertise and experience of the team?

The quality of the management team is a key decision factor in the investment process. Each key function requires specific industry expertise and experience.

"The trouble with the first time entrepreneur is that he doesn't know what he doesn't know. After a failure he does know what he doesn't know and can beat the hell out of people who still have to learn."
~Don Valentine from Sequoia Capital

It is important to know:
Is the management experienced and/or is an experienced and capable board in place?
Is the required skill set and expertise available or can they be acquired externally?
How hard or easy is it to recruit required talent for the project?
Is there any previous experience in start-up?
Is there name recognition among the press, public, etc.?
What is the profile of the advisory board members?

3.6 POTENTIAL RETURN – CAN IT PRODUCE ENOUGH RETURN?

Before making a significant investment of time and money, one should know the potential return should the venture be successful. Remember that for any investor or entrepreneur, there are other things you could be doing with your time or money. It is important to realistically evaluate a business opportunity to make an intelligent allocation of your own human or resource capital.

The potential return or payback is a function of the total available market, revenue model, pricing, profit margin and time-span. While investment bankers analyze the information by crunching the numbers, some other investors use instincts instead. While instincts can many times be valuable, several key areas should be evaluated to assess the potential return on investment.

Important to know:

How realistic are the projected returns?
How feasible is it to achieve those with proposed resources, in a timely manner?

3.6.1 Accurate Market Size – How large is the servable market?

In developing business plans, companies of all sizes face the challenge of determining the right size of their markets, particularly if they are competing in new or rapidly evolving markets. Companies have to clearly distinguish between total available and servable markets and accurately estimate their market size. The servable or target market represents the market that the business will attempt to attract. A high end fashion store does not serve every customer looking for clothes. They most likely don't even wish to serve all high end customers, but perhaps just those looking for certain items or items from a certain area. Mistaking the total market size for the actual servable market is one of the most common errors in business planning. An accurate estimation of servable market will allow the business to understand what realistic success is.

It is important to know:
Are the total available and servable markets known and accurately estimated?
Are the sources of data or estimation methods reliable?

3.6.2 Realistic Market Share – How much market share can be achieved?

As a general rule, a company is better off to achieve dominance in a smaller market, than owning a small share in a larger market. Companies able to obtain greater than 30% market share are almost always profitable because they tend to be known as an industry leader and are able to use economies of scale to their advantage. At the same time it is not possible to capture 10%+ market share without getting noticed by big players. A business must consider how they will handle larger companies entering their market, and how their products or services will be different from those of their competitors.
It is important to know:
What size of the market is this venture projecting to own? Is it big enough?
Is the expected share of the market realistic and achievable?
How will the company keep their market share against competition?

3.6.3 Convincing Revenue Model – How will you generate revenue?

A solid revenue model is the foundation for a sustainable business. It defines the path to profit and should reflect cyclicality, seasonality and growth. The revenue model must also be realistic for the given industry. If the industry is new, parallels can be made to other industries or assumptions about the new industry must be made clear so the revenue model is understood.

It is important to know:
Are the existing and projected revenues clearly defined and understood?
Is the revenue model viable, scalable and acceptable to target customers?
Is market seasonality or cyclicality an issue?

3.6.4 Attractive Profit – Will the venture be profitable?

The projected profit has to justify a business existence and demonstrate enough areas of potential growth. The profit is driven by the company's pricing strategy, profit margin and future prospects. Ultimately profit margin dictates the business capital requirement, time to break even and positive cash flow.

Pricing has to be set according to investors expected ROI and present a reasonable timeframe for the company to break even. Future prospects are constructed based on addressable and achievable markets.

It is important to know:
Is there any customer validation for unit volumes and pricing?
What length of time is required to achieve profits and then how long after that before positive cash flow?
Would those who have the problem be able to afford the solution?
Would they agree that the cost is fair?

3.6.5 Reasonable Valuation – How much will the company be worth?

A reasonable valuation must be calculated so that an investor will be happy with his potential returns while at the same time the entrepreneur and other investors don't feel their stake is overly diluted. The way in which a business conducts its operations is an important element to take into consideration when evaluating a company's value. For instance, companies that are devoting significant resources to creating a new product may have relatively weak earnings now. But, if that new product catches on, profits could quickly rise and the earnings may begin to soar. Meanwhile, companies that have great earnings now, but are not investing in innovation and/or new products to ensure their continued success, may have significant problems in the future.

It is important to know:
Is the anticipated valuation realistic and up to market standards?
What are the goodwill or intangible assets of the company?
Does it reflect the existing intrinsic value and justify the risk?

3.6.6 Predictable Dilution – How will multiple investment rounds be managed?

Raising capital in planned multiple rounds has two major benefits: managing dilution for existing shareholders and mitigating investment risk. It is important to mange how initial investors' shares will be diluted over time because that will affect their ROI. Also, planned capital fundraising lets investors know how the firm plans on staying viable over the long term. Measures such as anti-dilution clauses and focus on value creation can improve the predictability and mitigate dilution risk.

It is important to know:
Is there any future capitalization planned?
What IRR (based on realistic valuation) is forecasted for the next round of investors and how does that impact this round of shareholders?

3.6.7 Realistic Exit Plan – How will the Company achieve liquidity?

Perhaps the single most important event for investors is a successful exit. A well thought-out exit plan is indispensable in the financing process. Ultimately, investors want to know how much money they will be able to get from their investment, and how long it will take for their investment to achieve liquidity. The longer it will take a company to achieve liquidity, the more profit the company must show will exist in order to lure investors. If no exit plan exists, investors will have no way of gauging when they will receive their investment returns.

It is important to know:
Is there a credible exit/return plan for investors in place?
Is the company open to a range of exits (acquisition, mergers, or IPO)?
Are there a sufficient number of likely acquirers?
Can the company exit valuation be estimated based on public companies in similar industries?
Is the exit potential within a reasonable time frame (e.g. 3-5 years)?

3.7 MARGIN OF SAFETY - IS THERE ANY PROTECTION?

"Only the Paranoid Survive" - Andrew S. Grove

There are numerous outside factors that can affect a company's destiny. Each business and each entrepreneur is unique. It's important to understand the risks and be prepared to withstand potential shocks that are beyond a business' control. Understanding these outside factors which can hurt a business will allow for more accurate risk management as well as a more accurate evaluation of potential returns.

Due diligence is always needed by both investors and entrepreneurs to ensure that good business decisions are being made. In 1998, Volkswagen outbid BMW to purchase Rolls Royce, including all of their intellectual property. Unfortunately they forgot to buy the Rolls-Royce brand name, which BMW had purchased at the last minute.[2] Volkswagen didn't perform due diligence and missed out on one of most important assets that Rolls Royce had.

Consequently, various protections have to be carefully evaluated.
That is done in two ways:
1) What kind of foreseeable marketplace changes could affect the company?
2) How prepared is the company to mitigate and deal with these surprising events?
3) How can the company recover from unforeseeable market changes or events?

3.7.1 Competition Awareness – What companies pose a threat to your success?

Very few times in the history of entrepreneurship has a company existed without competition. Some say understanding and analyzing competition is as important as understanding and analyzing the company's products and business plan. Entrepreneurs often think that because their ideas are revolutionary, there will be no competition; for this reason, absence of good analysis and lack of appreciation for competition are some of the most common mistakes made by entrepreneurs.

It is important to know:
Are existing and future competitors well analyzed, understood and prepared for?
What are the strengths and weaknesses of each of them?
How successful are they? (Market shares, revenue, etc.)
What are their product differentiators?
Do customers and vendors love them or show them noteworthy loyalty?

3.7.2 Barriers to Entry – How easily can competitors enter the market?

"Barrier to entry" provides insurance for small companies already in a market, and could be devastating to a company attempting to get in a market. It is the obstacle and difficulty of duplicating the core competencies that will discourage or slow down competitors.

Barriers to entry can be established through:
- Response/lead time
- Legal, contractual advantage
- Contracts and networks
- Key people
- Proprietary protection
- Geographical leverage

It is important to know:
Are there barriers to entry or other leverage points in place or planned to sustain the projections?

3.7.3 Controllable Expenditure – How will overspending be avoided?

In resource-poor startups any downturn, delay or shift in projected income can prove fatal. To survive, management has to take control of the burn-rate. The burn-rate is the rate at which a company is using its funds, and lets investors know how long the company can survive before running out of funds. Having a plan for unexpected expenditures or downturns in revenues will allow a company to weather the storm while still in infancy.

It is important to know:
How much control does the management have on spending (i.e. salary liability, long term lease, etc.)?
Are there any contingency plans for miscalculations in technology, people and market?

3.7.4 Knowledge Retention – Will company expertise be retained?

Companies spend a significant amount of their time and resources in acquiring knowledge. The ability to learn, innovate and improve directly impacts a company's value, if that ability is retained in-house.
Knowledge retention can be achieved through management practice, communication, documentation, measurement metrics and business processes.

It is important to know:
Is the company conscious about and proactively involved in retaining gained expertise and knowledge in house?
Is the retained knowledge utilized in improving core competencies, internal processes and quality of product/service?

3.7.5 Asset and Collateral – Are there assets to protect from losses?

A company's assets serve as protection if the business fails because investors don't lose all of their investments if there are some assets available during a selloff. Investors take a greater risk and are less likely to recover losses when there is a large gap between investment amount and the company's assets.

Among others, assets include:
Cash and cash equivalents
Marketable Securities
Accounts receivable
Inventories
Prepaid Expenses

It is important to know:
Are there any tangible assets to protect the investments?
What is the fair market value of these tangible assets?

3.7.6 Marketable Intangibles – Can you take advantage of any intangibles?

Intangible assets including brand, goodwill, customers, partners and intellectual property contribute to a company's intrinsic value. Marketable intangibles can serve as additional protection of investment because these will be very difficult for competition to duplicate. The analysis and appraisal of intangible assets is complicated due to the nature of these assets, but they must be estimated in order to evaluate a company properly.

It is important to know:
Are there any intangible assets associated with the business?
What is the fair market value of company's intangible assets?

3.7.7 Liquidation Seniority – How will liquidation be managed?

Under liquidation, those investors whose investments are backed by collateral are paid first. Other investors may take a greater risk and are less likely to recover due to subordinate position or other liquidation preferences.

It is important to know:
Is there exposure to any existing liens or commitments?
What are the liquidation preferences, if any?

4. Mathematical Model

The purpose of a mathematical model is to help both entrepreneurs and investors measure and compare investment opportunities in a consistent and systematic way.

Investment decisions are entirely subjective and cannot be generalized. However, the proposed analytical models can help investors to develop, test and standardize their own internal model.

For this reason, the assessment is best started by assigning a numeric value to each element of the model. This will describe how well each of the seven elements is positioned to contribute to the total success of the venture. It has to describe the availability or ability of the element to deliver the promises. The value is selected from a range of 0 to 100, with 0 being “the worst” and 100 being “the best”.

Accordingly, the total score of a venture is calculated as follows:

```
Score =  (O + S + E + H + F + R + P) / 7
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with

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O = Market Opportunity
S = Products/Solution
E = Execution Plan
H = Human Capital
F = Financial Engine
R = Potential Return
P = Margin of Safety
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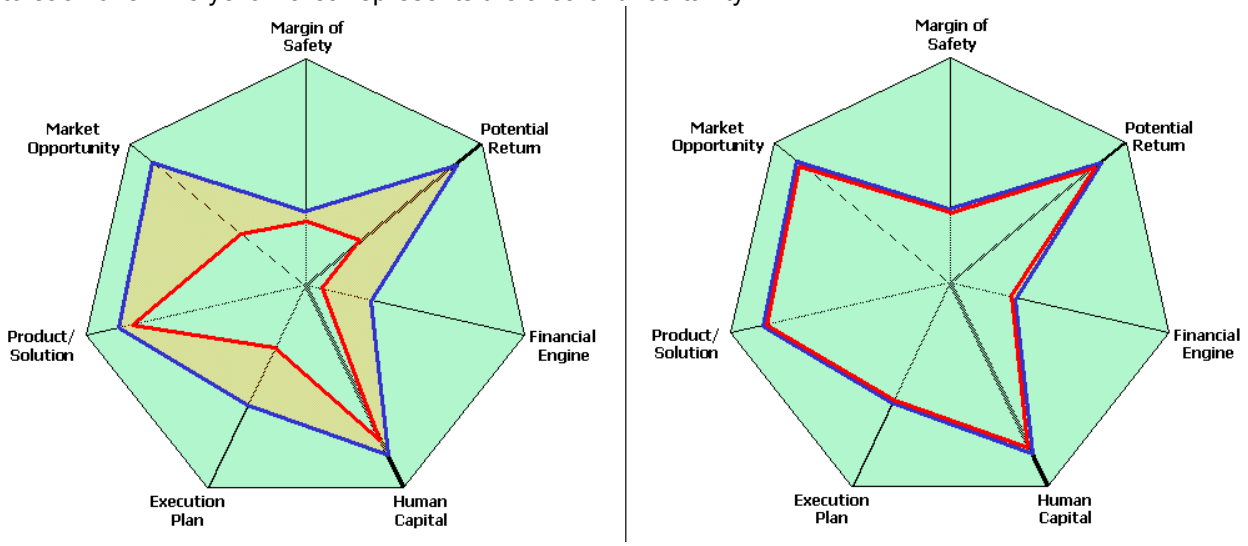
In addition the model is able to capture the confidence level of assessment. In the following graph the blue line represents the score of the elements, while the red line represents the confidence level relative to each one. The yellow area represents the area of uncertainty.



A maximum confidence level will cause the red line to overlay with the blue line and minimize the yellow uncertainty area.

As such the total confidence level of a venture is calculated as:

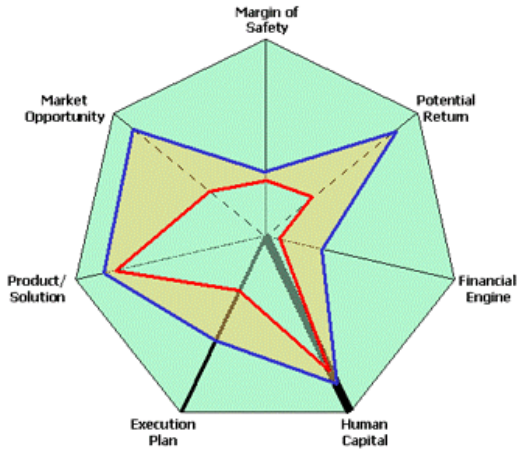
$$Confidence = (C_O*W_O + C_s*W_s + C_E*W_E + C_H*W_H + C_F*W_F + C_R*W_R + C_P*W_P)/ WTotal$$

with

C = Confidence Factor for each element as a percentage
W = Importance of each element as a percentage
WTotal = Total assigned weights

The weights of the criteria are usually determined on a subjective basis. These weights represent the opinion of a single decision maker or synthesize the opinions of a group of experts using a group decision technique.

Furthermore, the model can capture the fitness of opportunities in accordance with the importance of the elements to each investor rather than treating them equally. While some investors might be more intrigued by the market opportunity, others may put more emphasize on the team.



To incorporate that aspect of an investor's preferences the model utilizes a weighting mechanism. The weights are captured and presented in the graph as thickness of lines corresponding to each element.

Fitness is calculated as:

$$Fitness = (O*C_O*W_O+S*C_S*W_S+E*C_E*W_E+H*C_H*W_H+F*C_F*W_F+R*C_R*W_R+P*C_P*W_P)/ WTotal$$

Accordingly, assessment can consistently result in a spider graph as well as a short description detailed as:

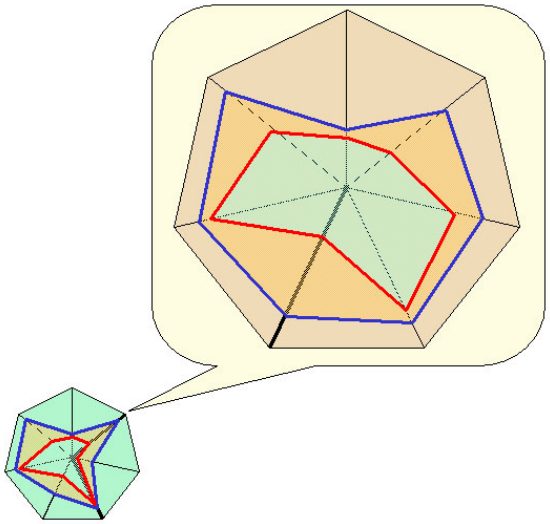
$500K – Biotech – 30% Growth – 3Y Exit – Score: 65 – Confidence: 45 – Fitness: 78
or
$500K – Retail – 2% Growth + 10% Income – Score: 75 – Confidence: 55 – Fitness: 26

The above example includes the capital requirement, industry and potential returns, along with a visual representation of potential risks and weaknesses.

To increase the accuracy of assessment each element of the model can be examined using the same heptalyzation model. As described in chapter 4, each element is assessed using quantifying questions. These sub-elements can be scored and weighted in the same manner as in the core elements.

This sublevel scoring can automate the calculation of higher-level scores and confidence levels.

For example element “A” is examined using questions A.Q1, A.Q2, A.Q3, … where each question is again represented with a score, a confidence factor and a weight.



Accordingly the score and confidence level of “A” can be calculated as:

$$\text{Score of “A”} = \sum_{i=1}^{n} (SQ_i * WQ_i) \;/\; \sum_{i=1}^{n} WQ_i$$

$$\text{Confidence level of “A”} = \sum_{i=1}^{n} (CQ_i * WQ_i) \;/\; \sum_{i=1}^{n} WQ_i$$

With

SQ = Score of each quantifying question for element “A”
WQ = Weight assigned to each quantifying question for element “A”
CQ = Confidence level of answers for each quantifying question

The sub-scoring concept can be applied to as many levels as needed.

While this framework is still vulnerable to judgment errors, it provides a methodology that can be continuously improved and adjusted in accordance to the user’s experience.

A working model of the heptalysis is available on www.heptalysis.com Delete this statement??

5. Score, Confidence and Weight Criteria

In its simplest form, a single user can derive a Heptalysis score by rating each of the sub-factors. With each factor having 7 sub-factors of its own, a user will rate 49 sub-factors in order to yield a score, confidence and weight. But how does a user score each sub-factor? What constitutes a score of 100? How do you put a numerical score on sub-factors such as *Ethics & Integrity* or *Vivid Pain or Desire*? All these questions are valid in that they point to the ambiguity of an unbounded assessment methodology. This chapter will try to outline a standardized quantification method, describe the drawbacks of a single user assessment and explore alternative scoring methodologies to enhance the assessment's pedigree.

Scoring the Sub-Factors: A Standardized Approach

A wise person once said "one man's trash is another man's treasure." In the case of Heptalysis, it should be "one person's score of 100 is another person's score of 50." A major hurdle encountered by any assessment methodology is that people conduct the assessment, and these people make judgments based on their personal history, academic and professional background. These judgments can vary widely from person to person. Therefore, the usefulness of Heptalysis is lost if one assessment cannot be compared to another. For an assessment to be repeatable and comparable across all users, it must have a standardized input methodology.

A simple way to standardize the input is to prevent the user from simply picking the sub-factor score. This is usually accomplished by developing a set of questions that, collectively, will produce a score for the sub-factor. This methodology controls the scope of the sub-factor, and ensures that the assessor will take into consideration everything needed to accurately derive a score. These questions can be thought of as sub-sub-factors in that they are just derivatives of sub-factors.

The Single User Assessment

The single user assessment is the simplest approach to deriving a Heptalysis score. However, there are several issues that arise from an output derived from a single user assessment:

- **The output is only as good as the input used to derive it**
  - What one user rates 100, another may rate 50.
  - A good score to one user may be 90, while to an other it may be 60.
  - A user with 20 years of experience in venture capital would probably provide a more meaningful assessment than an entry level analyst.
- **It requires the user to have a broad knowledge of business fundamentals**
  - Considering that the Heptalysis model covers the entire spectrum of what makes a business venture successful, the user would need to be well versed in every facet of entrepreneurship to adequately execute the model.
  - Most people either know a lot about little, or a little about lot, but rarely both.
- **It is susceptible to judgment error and systematic bias**
  - People tend to be more critical of factors within their own area of expertise.
  - For example, a user with a finance background might put a higher emphasis on a venture's revenue model and ROE than its management team and marketing plan. Should that be ROI?
- **Deriving a confidence value can be difficult**
  - The single user assessment leaves no quantitative way of deriving a confidence value.
  - In this framework, a confidence value is basically a judgment call determined by the user and is susceptible to the same drawbacks as the user defined score.

The Panel of Experts Technique

The Panel of Experts technique overcomes many of the downfalls presented by the single user assessment. The process is fairly simple: gather a group of industry experts and have them conduct the same assessment independent of each other. The result is a sample of scores for each sub-factor.

This technique is commonly used in the aerospace and defense industries in conducting quantitative risk assessments on complex systems involving multiple disciplines. For example, it would be nearly impossible for one person to accurately assess the financial risk on the development of a new surface-to-air missile. To do this, the user would need in depth knowledge of aerodynamics, electrical engineering, mechanical engineering, software design, manufacturing, logistics, contract law, finance, etc. Rather than searching the globe for this all knowing individual, it is much easier to form a team of experts representing the various disciplines involved.

Benefits of the Panel of Experts technique:

- In theory, the more assessments conducted the higher the confidence in the score
    - Basic statistics tells us that the larger the sample size, the higher the confidence that the sample reflects the same attributes as the overall population
    - It should "home in" on the true score
- It eliminates any systematic bias, as long as the panel is sufficiently diverse
- By having a sample of scores for each sub-factor, a confidence metric can be derived
    - There are many ways to derive a confidence metric from a sample, however the most common way is to subtract the standardized distance between the 90^{th} and 10^{th} percentile from one. The result will be a decimal between zero and one and is usually represented as a percentage.
    - Subsequently, a weighted score can be derived that accounts for a high or low confidence metric.
- It can be easily modeled via Monte Carlo simulation
    - Monte Carlo simulation is a statistical technique that can be used for, among many other things, modeling uncertainty. In this case, it allows the Heptalysis model to have varying inputs based on the sub-factor score sample.

Drawbacks of the Panel of Experts technique:

- It requires experts, which are sometimes hard to find. Finding a diverse panel may be even harder
- It exposes the venture and its idea(s) to outsiders, who could potentially steal it
- If the same group of experts conduct every assessment, the output could be biased
- Monte Carlo simulation can lead to deceiving output if modeled incorrectly.

Overall, the Panel of Experts technique is a great way to add certainty to a Heptalysis assessment. Implementation could come in several forms. The panel of experts could be the general partners of a venture capital firm, local business leaders paid for their time, local MBA students, or some kind of Heptalysis member association.

Example: Panel of Experts

This technique can be set up using the following table from Microsoft Excel©.

FIRM: GURGLE, INC																					
			PANEL OF EXPERTS - INDEPENDENT SCORING					TRIANGLE POINTS			MC SIMULATION		SIMULATION STATISTICS						OVERALL ASSESSMENT		
VARIABLE	FACTOR	WEIGHTS	Analyst 1	Analyst 2	Analyst 3	Analyst 4	Analyst 5	MIN	M/L	MAX	DIST	FORECAST	MEAN	MEDIAN	VARIANCE	STD DEV	10%	90%	SCORE	CONFIDENCE	WEIGHT
ALL	ALL FACTORS		83.5	82.0	83.5	83.9	83.6	73.1	83.3	91.0	0.0	0.0	82.5	82.6	21.0	3.7	77.4	87.4	82.6	90.0%	74.5
O	MARKET OPPORTUNITY	1.6	82.7	74.1	85.0	90.0	87.5	55.0	83.9	96.6	0.0	0.0	78.5	79.4	99.9	8.8	65.9	89.4	79.4	76.5%	62.0
O.1	Vivid Plan or Desire	1.0	90	95	80	95	50	50.0	82.0	95.0	0.0	0.0	75.7	76.8	89.1	9.4	62.2	87.5	76.8	74.7%	57.4
O.2	Lack of Suitable Solution	2.0	90	20	95	95	80	20.0	76.0	95.0	0.0	0.0	63.7	65.9	253.8	15.9	40.5	83.1	65.9	57.4%	37.8
O.3	Clear Target Market	2.0	40	80	90	95	90	40.0	79.0	95.0	0.0	0.0	71.2	72.4	133.5	11.6	54.6	85.8	72.4	68.8%	49.9
O.4	Demand Validation	2.0	90	80	90	95	99	80.0	90.8	99.0	0.0	0.0	89.9	90.0	15.3	3.9	84.5	95.1	90.0	89.4%	80.5
O.5	Sustainability	1.0	90	85	35	85	95	35.0	78.0	95.0	0.0	0.0	69.2	70.6	160.3	12.7	50.9	84.9	70.6	66.1%	46.6
O.6	Market Timing	2.0	100	90	95	80	95	80.0	92.0	100.0	0.0	0.0	90.7	91.0	17.2	4.2	84.8	96.1	91.0	88.7%	80.8
O.7	Mission and Vision	1.0	90	95	80	80	90	80.0	87.0	95.0	0.0	0.0	87.3	87.2	9.3	3.0	83.2	91.4	87.2	91.7%	80.0
S	PRODUCTS / SOLUTION	1.9	76.5	79.2	78.5	75.8	73.1	67.7	76.6	84.2	0.0	0.0	76.2	76.3	12.7	3.4	71.5	80.7	76.3	90.8%	69.6
S.1	Clear Value Proposition	1.0	95	85	90	85	75	75.0	86.0	95.0	0.0	0.0	85.4	85.6	16.7	4.1	79.7	90.8	85.6	89.0%	76.1
S.2	Market Acceptance	3.0	90	80	90	75	75	75.0	82.0	90.0	0.0	0.0	82.3	82.2	9.3	3.0	78.3	86.5	82.2	91.8%	75.5
S.3	Proof of Concept	2.0	85	90	80	90	85	80.0	86.0	90.0	0.0	0.0	85.3	85.5	4.3	2.1	82.4	88.0	85.5	94.4%	80.7
S.4	Sufficient Benefit of Substitutes	1.0	50	45	50	35	20	20.0	40.0	50.0	0.0	0.0	36.7	37.4	40.2	6.3	27.5	44.6	37.4	82.9%	31.0
S.5	Holistic Supply Chain	2.0	70	80	65	75	80	65.0	74.0	80.0	0.0	0.0	73.0	73.2	9.4	3.1	68.7	77.0	73.2	91.7%	67.1
S.6	Regulatory and Legal Protection	2.0	60	75	80	65	70	60.0	70.0	80.0	0.0	0.0	70.0	69.9	16.7	4.1	64.5	75.5	69.9	89.0%	62.2
S.7	Product Roadmap	2.0	75	85	80	90	80	75.0	82.0	90.0	0.0	0.0	82.4	82.3	9.6	3.1	78.3	86.6	82.3	91.6%	75.4
E	EXECUTION PLAN	1.9	88.1	88.5	87.3	91.2	90.0	82.7	89.0	95.0	0.0	0.0	88.9	88.9	6.7	2.5	85.5	92.3	88.9	93.2%	82.8
E.1	Valuation Growth Plan	2.0	90	85	85	95	90	85.0	89.0	95.0	0.0	0.0	89.7	89.5	4.2	2.1	87.0	92.6	89.5	94.4%	84.5
E.2	Marketing and Promotion Plan	2.0	95	90	90	90	85	85.0	90.0	95.0	0.0	0.0	90.1	90.1	4.1	2.0	87.3	92.8	90.1	94.5%	85.1
E.3	Sales and Distribution Plan	2.0	90	95	80	95	95	80.0	91.0	95.0	0.0	0.0	88.7	89.1	10.1	3.2	84.1	92.6	89.1	91.5%	81.5
E.4	Production and Quality Plan	2.0	80	95	80	85	95	80.0	87.0	95.0	0.0	0.0	87.4	87.3	9.5	3.1	83.2	91.6	87.3	91.6%	80.0
E.5	Compensation Plan	2.0	85	80	90	95	80	80.0	86.0	95.0	0.0	0.0	87.0	86.8	9.4	3.1	83.0	91.3	86.8	91.7%	79.6
E.6	Resource Allocation	2.0	90	85	95	90	95	85.0	91.0	95.0	0.0	0.0	90.3	90.4	4.2	2.0	87.5	92.9	90.4	94.5%	85.5
E.7	Milestones and Measurements	1.0	85	90	95	85	90	85.0	89.0	95.0	0.0	0.0	89.7	89.5	4.2	2.1	87.0	92.5	89.5	94.4%	84.5
H	HUMAN CAPITAL	1.9	90.4	88.1	87.7	79.8	89.2	79.8	87.0	94.2	0.0	0.0	87.0	87.0	9.2	3.0	83.0	91.0	87.0	92.0%	80.1
H.1	Moderate Startup Capital Need	2.0	90	85	85	80	85	80.0	85.0	90.0	0.0	0.0	85.0	85.0	4.2	2.0	82.2	87.7	85.0	94.5%	80.3
H.2	Reasonable Fixed Costs	1.0	90	95	80	75	80	75.0	84.0	95.0	0.0	0.0	84.7	84.6	16.7	4.1	79.2	90.3	84.6	88.9%	75.2
H.3	Scalable Variable Costs	2.0	95	90	95	85	95	85.0	92.0	95.0	0.0	0.0	90.7	91.0	4.4	2.1	87.7	93.3	91.0	94.4%	85.8
H.4	Manageable Debt and Obligation	3.0	95	80	90	80	90	80.0	87.0	95.0	0.0	0.0	87.3	87.2	9.1	3.0	83.2	91.4	87.2	91.8%	80.0
H.5	Available Cash and Asset	3.0	80	95	85	79	90	79.0	85.8	95.0	0.0	0.0	86.6	86.4	10.6	3.3	82.4	91.2	86.4	91.2%	78.8
H.6	Value-adding Use of Fund	1.0	95	80	90	80	90	80.0	87.0	95.0	0.0	0.0	87.4	87.3	9.4	3.1	83.3	91.6	87.3	91.7%	80.0
H.7	Defensible Future Capitalization Need	1.0	95	95	85	75	90	75.0	88.0	95.0	0.0	0.0	86.0	86.4	17.0	4.1	80.2	91.2	86.4	88.9%	76.8
F	FINANCIAL ENGINE	1.7	85.0	86.3	84.6	84.2	89.8	76.7	84.2	91.3	0.0	0.0	84.0	84.1	9.2	3.0	80.0	88.1	84.1	91.9%	77.2
F.1	Confidence and Commitment	1.0	70	80	70	85	75	70.0	76.0	85.0	0.0	0.0	77.0	76.9	9.4	3.1	73.0	81.3	76.9	91.8%	70.5
F.2	Persistent & Focus	1.0	80	85	90	95	85	80.0	87.0	95.0	0.0	0.0	87.4	87.3	9.4	3.1	83.2	91.5	87.3	91.7%	80.0
F.3	Objective & Rational	2.0	80	90	80	80	75	75.0	81.0	90.0	0.0	0.0	82.0	81.8	9.7	3.1	78.0	86.4	81.8	91.6%	74.9
F.4	Ethics and Integrity	1.0	90	85	75	70	85	70.0	81.0	90.0	0.0	0.0	80.4	80.5	16.4	4.0	74.8	85.7	80.5	89.0%	71.6
F.5	Motivation and Alignment	2.0	85	75	80	85	80	75.0	81.0	85.0	0.0	0.0	80.3	80.5	4.2	2.0	77.5	83.0	80.5	94.4%	76.0
F.6	Roles and Responsibilities	2.0	90	85	95	95	80	80.0	89.0	95.0	0.0	0.0	88.0	88.3	9.6	3.1	83.7	92.0	88.3	91.6%	80.9
F.7	Skills and Experience	3.0	90	95	90	80	85	80.0	88.0	95.0	0.0	0.0	87.7	87.7	9.5	3.1	83.4	91.8	87.7	91.6%	80.3
R	POTENTIAL RETURN	1.7	81.3	82.1	87.1	86.5	85.4	77.1	84.5	91.9	0.0	0.0	84.5	84.5	10.3	3.0	80.4	88.6	84.5	91.7%	77.5
R.1	Accurate Market Size	2.0	80	95	100	90	90	80.0	91.0	100.0	0.0	0.0	90.4	90.5	16.5	4.1	84.8	95.7	90.5	89.1%	80.6
R.2	Realistic Market Share	1.0	60	70	55	65	70	55.0	64.0	70.0	0.0	0.0	63.0	63.2	9.4	3.1	58.7	67.0	63.2	91.7%	57.9
R.3	Convincing Revenue Model	1.0	85	90	80	75	95	75.0	85.0	95.0	0.0	0.0	85.0	85.0	16.7	4.1	79.4	90.5	85.0	89.0%	75.6
R.4	Attractive Profit	2.0	95	80	85	99	90	80.0	89.8	99.0	0.0	0.0	89.5	89.6	15.2	3.9	84.2	94.8	89.6	89.4%	80.1
R.5	Reasonable Valuation	3.0	80	80	90	90	85	80.0	85.0	90.0	0.0	0.0	85.0	85.0	4.3	2.1	82.2	87.8	85.0	94.4%	80.2
R.6	Predictable Dilution	1.0	90	85	90	90	85	85.0	88.0	90.0	0.0	0.0	87.7	87.7	1.0	1.0	86.2	89.0	87.7	97.2%	85.3
R.7	Realistic Exit Plan	2.0	75	75	90	80	80	75.0	80.0	90.0	0.0	0.0	81.7	81.4	9.8	3.1	77.8	86.2	81.4	91.5%	74.5
P	MARGIN OF SAFETY	2.0	80.4	75.7	75.4	81.1	79.6	71.1	78.4	85.4	0.0	0.0	78.3	78.3	10.5	2.9	74.3	82.2	78.3	92.1%	72.7
P.1	Competition Awareness	2.0	80	75	85	85	80	75.0	81.0	85.0	0.0	0.0	80.4	80.5	4.2	2.1	77.4	83.0	80.5	94.4%	76.0
P.2	Barriers to Entry	2.0	50	20	30	45	40	20.0	37.0	50.0	0.0	0.0	35.5	35.9	37.8	6.1	26.9	43.5	35.9	83.4%	29.9
P.3	Controllable Expenditure	2.0	85	75	80	85	90	75.0	83.0	90.0	0.0	0.0	82.6	82.7	9.3	3.0	78.5	86.7	82.7	91.8%	75.9
P.4	Knowledge Retention	2.0	95	100	90	95	90	90.0	94.0	100.0	0.0	0.0	94.6	94.5	4.2	2.1	92.0	97.6	94.5	94.4%	89.2
P.5	Asset and Collateral	2.0	80	95	80	90	80	80.0	85.0	95.0	0.0	0.0	86.7	86.4	9.7	3.1	82.8	91.1	86.4	91.6%	79.2
P.6	Marketable Intangibles	1.0	90	90	100	95	100	90.0	95.0	100.0	0.0	0.0	95.0	95.0	4.2	2.1	92.2	97.7	95.0	94.5%	89.7
P.7	Liquidation Seniority	3.0	85	80	75	80	85	75.0	81.0	85.0	0.0	0.0	80.3	80.5	4.3	2.1	77.4	83.0	80.5	94.4%	76.0

As shown in the table, each expert scores each sub-factor. In this case, there are 5 experts and therefore each sub-factor has a sample of 5 scores. From this sample, various statistical measurements can be derived: Mean, median, variance, standard deviation, kurtosis, and percentiles. These measurements can be used to describe the sample distribution and can also be used to derive a confidence value.

This particular example has an overall score of 82.6, a derived confidence of 90%, and a weighted score of 74.5.

Benchmarking Technique

Another alternative to the single user assessment is benchmarking. Benchmarking is the process of comparing the attributes of a particular venture against the attributes of another venture, known as the benchmark. Ideally, the benchmark venture has completed its life cycle with relative success and can, therefore, be assessed in hindsight. In hindsight, one will likely have better judgment of which sub-factors the benchmark excelled in as well as which sub-factors the venture lacked in. Once assessed, the benchmark can be used as a measuring stick to rate new ventures.

For example, let us assume the benchmark venture received considerable success in marketing its product. The benchmark was rated, in hindsight, a score 85 in its sub-factor *Marketing and Promotion Plan*. Let us also assume the new venture has done everything the benchmark did in terms of marketing and promotion, and has also developed a new direct mailing system that is expected to have a significant effect on sales. In theory, this new venture should be rated at least 85, if not higher based on this comparison. This process is then repeated for each sub-factor to yield an overall score.

Benefits of the Benchmarking technique:

- Requires less subjectivity than the single user assessment
- Provides an idea of what is a *good* score
- Is widely acceptable to the layman
    - Most people can easily understand *better than*, *worse than* scoring

  - This benefit shouldn't be taken lightly, considering obtaining investor acceptance is key to any capital venture
- Can be easily quantifiable if implemented correctly

Drawbacks of the Benchmarking technique:

- Availability of data on the benchmark
- Availability of benchmark ventures
  - Newer VC firms may not have anything to compare to
  - Some ventures are very unique, and should be treated as such
- Reliance on judgment is minimized, but not eliminated
- Confidence value not statistically derived

Overall, benchmarking is a great substitute for the single user assessment. It is a more quantitative methodology, which leaves less room for subjectivity and human judgment. It also allows for continuity across multiple assessments. But, perhaps the biggest drawback of the benchmarking technique is that it fails to quantify confidence, which is left to the user to subjectively derive.

Example: Benchmarking

This technique can be set up using the following table from Microsoft Excel©.

FIRM: Start-Up.com								
			Benchmark: Gurgle, Inc.			CURRENT ASSESSMENT		
VARIABLE	FACTOR	WEIGHTS	SCORE	CONFIDENCE	WEIGHT	SCORE	CONFIDENCE	WEIGHT
ALL	ALL FACTORS		82.6	90.0%	74.5	73.2	68.8%	50.4
O	MARKET OPPORTUNITY	1.6	79.4	76.5%	62.0	67.8	55.5%	37.4
O.1	Vivid Plan or Desire	1.0	77	74.7%	57	86.8	84.7%	73.5
O.2	Lack of Suitable Solution	2.0	66	57.4%	38	80.9	72.4%	58.6
O.3	Clear Target Market	2.0	72	68.8%	50	47.4	43.8%	20.8
O.4	Demand Validation	2.0	90	89.4%	81	55.0	54.4%	30.0
O.5	Sustainability	1.0	71	66.1%	47	60.6	56.1%	34.0
O.6	Market Timing	2.0	91	88.7%	81	66.0	63.7%	42.1
O.7	Mission and Vision	1.0	87	91.7%	80	100.0	1.0%	1.0
S	PRODUCTS / SOLUTION	1.9	76.3	90.8%	69.6	67.0	80.6%	57.0
S.1	Clear Value Proposition	1.0	86	89.0%	76	75.6	79.0%	59.7
S.2	Market Acceptance	3.0	82	91.8%	75	82.2	91.8%	75.5
S.3	Proof of Concept	2.0	85	94.4%	81	75.5	84.4%	63.7
S.4	Sufficient Benefit of Substitutes	1.0	37	82.9%	31	37.4	82.9%	31.0
S.5	Holistic Supply Chain	2.0	73	91.7%	67	48.2	66.7%	32.1
S.6	Regulatory and Legal Protection	2.0	70	89.0%	62	34.9	54.0%	18.8
S.7	Product Roadmap	2.0	82	91.6%	75	97.3	100.0%	97.3
E	EXECUTION PLAN	1.9	88.9	93.2%	82.8	78.9	72.9%	58.7
E.1	Valuation Growth Plan	2.0	90	94.4%	85	89.5	94.4%	84.5
E.2	Marketing and Promotion Plan	2.0	90	94.5%	85	55.1	59.5%	32.8
E.3	Sales and Distribution Plan	2.0	89	91.5%	82	79.1	56.5%	44.7
E.4	Production and Quality Plan	2.0	87	91.6%	80	62.3	66.6%	41.5
E.5	Compensation Plan	2.0	87	91.7%	80	96.8	75.0%	72.6
E.6	Resource Allocation	2.0	90	94.5%	85	80.4	84.5%	68.0
E.7	Milestones and Measurements	1.0	90	94.4%	85	100.0	75.0%	75.0
H	HUMAN CAPITAL	1.9	87.0	92.0%	80.1	79.2	67.0%	52.5
H.1	Moderate Startup Capital Need	2.0	85	94.5%	80	85.0	94.5%	80.3
H.2	Reasonable Fixed Costs	1.0	85	88.9%	75	59.6	63.9%	38.1
H.3	Scalable Variable Costs	2.0	91	94.4%	86	56.0	59.4%	33.2
H.4	Manageable Debt and Obligation	3.0	87	91.8%	80	77.2	81.8%	63.1
H.5	Available Cash and Asset	3.0	86	91.2%	79	86.4	56.2%	48.6
H.6	Value-adding Use of Fund	1.0	87	91.7%	80	97.3	75.0%	72.9
H.7	Defensible Future Capitalization Need	1.0	86	88.9%	77	100.0	10.0%	10.0
F	FINANCIAL ENGINE	1.7	84.1	91.9%	77.2	71.7	69.4%	50.9
F.1	Confidence and Commitment	1.0	77	91.8%	71	51.9	66.8%	34.6
F.2	Persistent & Focus	1.0	87	91.7%	80	52.3	75.0%	39.2
F.3	Objective & Rational	2.0	82	91.6%	75	91.8	75.0%	68.8
F.4	Ethics and Integrity	1.0	80	89.0%	72	55.5	64.0%	35.5
F.5	Motivation and Alignment	2.0	80	94.4%	76	45.5	59.4%	27.0
F.6	Roles and Responsibilities	2.0	88	91.6%	81	63.3	66.6%	42.2
F.7	Skills and Experience	3.0	88	91.6%	80	100.0	75.0%	75.0
R	POTENTIAL RETURN	1.7	84.5	91.7%	77.5	77.8	72.5%	57.8
R.1	Accurate Market Size	2.0	91	89.1%	81	65.5	64.1%	42.0
R.2	Realistic Market Share	1.0	63	91.7%	58	28.2	56.7%	16.0
R.3	Convincing Revenue Model	1.0	85	89.0%	76	85.0	89.0%	75.6
R.4	Attractive Profit	2.0	90	89.4%	80	79.6	79.4%	63.2
R.5	Reasonable Valuation	3.0	85	94.4%	80	95.0	75.0%	71.2
R.6	Predictable Dilution	1.0	88	97.2%	85	52.7	62.2%	32.8
R.7	Realistic Exit Plan	2.0	81	91.5%	74	96.4	75.0%	72.3
P	MARGIN OF SAFETY	2.0	78.3	92.1%	72.7	69.7	62.2%	41.0
P.1	Competition Awareness	2.0	81	94.4%	76	80.5	94.4%	76.0
P.2	Barriers to Entry	2.0	36	83.4%	30	25.9	73.4%	19.0
P.3	Controllable Expenditure	2.0	83	91.8%	76	57.7	66.8%	38.6
P.4	Knowledge Retention	2.0	94	94.4%	89	59.5	59.4%	35.3
P.5	Asset and Collateral	2.0	86	91.6%	79	86.4	91.6%	79.2
P.6	Marketable Intangibles	1.0	95	94.5%	90	70.0	69.5%	48.6
P.7	Liquidation Seniority	3.0	80	94.4%	76	95.5	10.0%	9.5

As shown in the table, a benchmark is used to score the potential venture, Start-Up.com. Each sub-factor is scored based on a comparison to the benchmark company, Gurgle, Inc. This particular example has an overall score of 73.2, a derived confidence of 68.8%, and a weighted score of 50.4. Based on this comparison, it can be inferred that Start-Up.com will not do as well as Gurgle.

Summary

Both of the aforementioned techniques increase the certainty and accuracy of a Heptalysis assessment. The Panel of Experts technique is a fundamentally sound methodology of assessing a venture with implementation being its only drawback. Benchmarking is also a great method of deriving sub-factor scores; however, it fails to sufficiently address confidence.

6. Disclaimer

This paper does not provide investment advice, and should not be relied on as such nor is it a substitute for investment advice. The statements and opinions expressed here are solely those of the author and are not intended to constitute professional advice. Any reliance upon this paper shall be at the user's own risk, without any recourse to the author and his associations.

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Pejman Makhfi is a Silicon Valley technology veteran, serial entrepreneur and angel investor in the high-tech industry. Pejman has more than fifteen years of progressive experience in providing consultancy services and best practices to entrepreneurs, technology investors, and forward-thinking Startups.

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