“BUSINESS PLAN DEVELOPMENT METHOD FOR TECHNOLOGY-BASED PROJECTS TO SEEK VENTURE CAPITAL”

TESIS

MAESTRIA EN ADMINISTRACION DE TECNOLOGIAS DE INFORMACION

INSTITUTO TECNOLOGICO Y DE ESTUDIOS SUPERIORES DE MONTERREY, CAMPUS MONTERREY

Por

Ing. Cesar Centeno Arriaga

DICIEMBRE DEL 2001

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THESIS

MASTERS DEGREE IN INFORMATION TECHNOLOGY MANAGEMENT

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By

Cesar Centeno Arriaga

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Los miembros del comité de tesis recomendamos que la presente tesis del Ing. Cesar Centeno Arriaga sea aceptada como requisito parcial para obtener el grado académico de Maestro en Administración de Tecnologías de Información:

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TESIS

**Presentada a la División de Electrónica,
Computación, Información y Comunicaciones
Este trabajo es requisito parcial para obtener el Título
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INSTITUTO TECNOLOGICO Y DE ESTUDIOS SUPERIORES DE MONTERREY, CAMPUS MONTERREY

DICIEMBRE DEL 2001

DEDICATORIA

A MIS PADRES José Fco. y Tere

Por el amor y apoyo incondicional que he recibido de ustedes
desde el primer día de mi vida.

GRACIAS por siempre estar a mi lado.

Gracias a los valores y educación que me han inculcado he podido culminar
satisfactoriamente esta etapa de mi vida profesional.

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A Dios por darme la oportunidad de alcanzar esta meta en mi vida.

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Al Dr. Carlos Scheel, mi asesor, por apoyarme e impulsarme en el desarrollo de esta tesis.

A mis sinodales, por aceptar ser parte de este trabajo.

ABOUT THIS THESIS

This thesis is composed of 5 sections, each one of these sections will help the reader understand the technology commercialization process and its components as well as provide theoretical and practical tools to develop technology-based business plans.

Section 1

Fundamentals " Why did I write this thesis? "

In this section I define the basis on which this investigation was conducted; describe the problem this research intends to solve, the state of the art in technology commercialization processes, determine my thesis objective, detail the methodology followed and suggest a hypothesis towards a solution. In addition the reader will understand the way a venture capital firm thinks and identify what they are looking for in a business.

Section 2

Case of Study, 3DTV " Which case of study did I did? "

In section 2 of the thesis I present the result of the process (business plan) that my partners and myself have had to live through while attempting to introduce in the world market a Three Dimension Television System (3DTV); a technology that we developed (patent pending).

Section 3

Personal Contribution " What did I learn? "

Based in the experiences I lived in the 3DTV System commercialization process and the research involved to write the thesis, this section presents my proposed technology commercialization process. In this section, I also propose a particular model for development of technology-based business plans, a key element for venture capital backing. This section is based on my experience over more than three years behind our commercialization attempts. I apply those experiences and acquired knowledge to identify factors and key points that should show the reader the way a technology commercialization process works.

Section 4

Theory " What theories did I used? "

Inside the chapters of this section the reader will find the necessary theory and academic basis of each the business areas presented in section 3 for the technology commercialization process proposed and the particular model presented to develop business plans. The academic basis will allow the reader to familiarize himself with the terminology a technology-based business plan uses, as well as to be able to understand and apply the concepts used by it.

Section 5

Outlines " What tools did I used? "

This section provides supplements for the theory and academic basis detailed in the previous sections of the thesis.

Each one of the appendixes are presents the steps and outlines needed to develop the deliverables for a technology commercialization process outline and business plan.

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INTRODUCTION

In the last years, technology has turned essential for the competitive advantage in the dynamically changing private and public environments. The commercialization of science and technology based products or services are key elements to the creation of new technology-based enterprises.

Technology commercialization is important to businesses, both existing and new. It is also important to the economies of states and nations, and to the standard of living of individuals. Science and technology commercialization makes it possible for businesses to reinvent themselves through innovation that adds to the value chain. Commercialization is the basis for entrepreneurship from outside the company, as well as intrapreneurship or innovations within the existing organization.

Since World War II small entrepreneurial firms have been responsible for half of all innovation and 95 percent of all radical innovation in the United States. Research and development at smaller entrepreneurial firms was more productive and robust than at large firms: Smaller firms generated twice as many innovation per R&D dollar spent as the giant; twice as many innovations per R&D scientist as the giant; and 24 times as many innovations per R&D dollar versus those mega firms with more than 10,000 employees. [1]

Commercialization, or moving a technology from the lab into the marketplace, has a significant impact on the quality of life for people around the world. In addition, two other important dimensions are affected: The growth of productivity in a nation and the unemployment rate. Creating new knowledge leads to increases in productivity; which causes, costs to go down. Thus organizations are re-invented, existing jobs are sustained and new ones are often created to produce new technologies.

During the last decades, the accelerated growth of enterprises has been motivated by the entrepreneurial spirit in the US and rest of the world.

During the last quarter of the 20th century entrepreneurs and innovators have radically transformed the economy of America and the world. It is just the entrepreneurial engine of America's economy that has lead to the creation of major new inventions and technologies. Clearly, smaller entrepreneurial firms do things differently when it comes to research and development activities and of course get involved in scientist and technological projects. [1]

Entrepreneurs create value with high potential as well as new technologies, products, processes and services that become the next wave of new industries. Getting people to recognize the value of a technology is critical. Potential buyers of technology often undervalue the technology because they do not know as much about it as do its developers. On the other hand, potential buyers may know more about market opportunities than a technology's developers.

We live today in the golden age of entrepreneurship. Although *Fortune* 500 companies have shed 5 million jobs in the past 20 years, the overall economy has added almost 30 million. Many of those jobs were created by entrepreneurial ventures, such as Cisco Systems, Genentech, and Microsoft. Each of those companies started with a business plan. Is that why they succeeded? There is no knowing for sure but in the absence of a crystal ball, in fact, a business plan built of the right information and analysis can only be called indispensable. [2]

Entrepreneurs have not been the only element for this achievement, there is another important piece: venture capital firms and incubators. With the combination of these two players, the entrepreneurial revolution is here to stay. This revolution consists in taking the great or new idea of a new product or service and persuades investors to support it.

But seeking venture capital investment for a start-up is not an easy job and requires knowledge and skills to cope with the economic, social, financial, and political changes. Essentially, the business plan is the vehicle to get the entrepreneur in the door to talk to investors.

We notice the importance of the business plan in the entrepreneurial revolution so we need to define what is a business plan and for what it is used for:

A business plan is a written document describing all relevant internal and external elements and strategies for starting a new venture. [3]

The business plan admits the entrepreneur to the investment process. Without a plan furnished in advance, many investor groups won't even grant an interview. And the plan must be outstanding if it is to win investment funds. [4]

Any business plan has a dual function: Internal (providing management and staff with a clear map, complete with signpost and milestones against which progress can monitored and evaluated and External (presenting the investment case to an outsider, the business plans are sales documents) [5]

A business plan defines the corporate objectives, communicates them to others, and serves as the basis of the financing proposal and business plans is use to: Start a business, expand an existing business, merge with another company, acquire another company, enter into a buy/sell with other owners or partners, discontinue certain operations, sell the company, reorganize, or a combination of several of these options. [6]

There is an old saying, 'If you don't know where you are going, any road will get you there.' In crafting sensible entrepreneurial strategies, just the opposite is true: you had better know where you might end up and have a map for getting there. A business plan should be the place where that map is drawn, for, as every traveler knows, a journey is a lot less risky when you have proper directions. [2]

We have already such different definitions about a business plan and it's also necessary to define what does venture capital means and the roll of the venture capital firms in the entrepreneurial revolution.

Venture capital is money provided by professionals who invest alongside management in young, rapidly growing companies that have the potential to develop into significant economic contributors. Venture capital is an important source of equity for start-up companies. Professionally managed venture capital firms generally are private partnerships or closely held corporations funded by private and public pension funds, endowment funds, foundations, corporations, banks, wealthy individuals, foreign investors, and the venture capitalists themselves. [7]

Venture capitalists generally: Finance new and rapidly growing companies, purchase equity securities, assist in the development of new products or services, add value to the company through active participation, take higher risks with the expectation of higher rewards and have a long-term orientation. [7]

Value of a technology must be well articulated to stakeholders. These interested parties have invested resources; they will benefit downstream from the discoveries. Researches and developers must manage the expectations of the stakeholders; often this means that expectations should not be set too high, and that those expectations must be met or exceeded. Risk must be considered in early-stage ventures. Some projects will be halted in order to direct resources to others that have greater potential. Information about a technology and the market can change very quickly.

SECTION 1

“Fundamentals”

CHAPTER 1

ABOUT THE RESEARCH

PROBLEM SITUATION

Few areas of business attract as much attention as new ventures, and few aspects of new-venture creation attract as much attention as the business plan. Countless books and articles in the popular press dissect the topic. Both graduate and undergraduate schools devote entire courses to the subject. Indeed, judging by all the hoopla surrounding a business plan, you would think that the only things standing between a would-be entrepreneur and spectacular success are glossy five-color charts, a bundle of meticulous looking spreadsheets, and decade of month-by-month financial projections. [2]

If someone has a great idea for a new technological based product or service—how can he/she persuade investors to support it? How can he/she get funding for development, implement and most important, to introduce this new product or service to the market? Flashy PowerPoint slides aren't enough; he/she needs a business plan.

A growing number of annual business-plan contests are springing up across the United States and, increasingly, in other countries. Also many new venture capital firms are growing around the world looking for projects to invest in, but entrepreneurs might not be ready to get involved in the process of seeking venture capital funds if the business plan does not demonstrate mastery of the entire process from identification of opportunity to harvest.

There is a big opportunity for entrepreneurs to get funding to finance a new business idea and America and the world are more alive, opened to new business, and more accessible than ever because the new technological and innovation changes have made that VC investments grow fast.

One study of venture capital baked companies found that the 235 responding firms had been in existence for and average of 1.9 years, for the 1985 through 1989 had created 36,000 new jobs, had $786 million in export sales, had $726 million in research and development expenditures, and had $170 million in corporate tax payments. The average firm employed 153 people, with $3.3 millions in export sales, invested $3.1 million in R&D, and paid $723,000 in taxes. These firms' contributions to the US economy far outstrip the majority of small business and giant corporations. [8]

The next exhibit shows how the number of companies founded and the total investment by venture capital firms were increased year by year during the last decade.

Venture Capital Investments Made from 1990 –2000 in the US

Year	No. of Companies Funded	Total Investment ($millions)
1990	1317	3376.21
1991	1088	2511.43
1992	1294	5177.56
1993	1151	4962.87
1994	1191	5351.18
1995	1327	5608.30
1996	2004	11277.67
1997	2696	17207.05
1998	3155	22576.49
1999	3956	59163.93
2000	5458	103,848.59

Exhibit 1
Source: National Venture Capital Association[1]

We are at the new age of technology-based enterprises creation in America and the world. This is a consequence of a new technological revolution; a perfect example now is the Internet. The next exhibit shows a growth in the number of Internet incubators and venture capital firms, due to the new economy created by new electronic business.

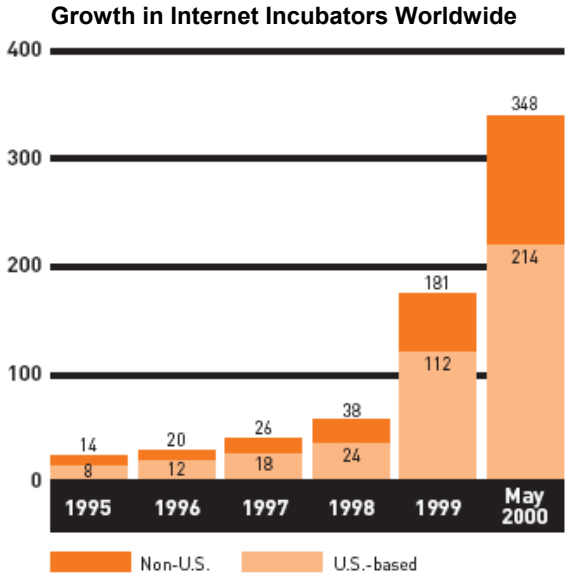

Exhibit 2
Source: The State of the Incubator Marketplace, HBS, June 2000, and "The Industry Standard" [9]

THE PROBLEM

In today's environment, a business plan is the entrepreneur's crucial business document. No company can expect to articulate its goals or to secure financing without a well-convincing business plan; no one will seriously consider the business idea.

Investors now are far more structured and expect a far higher level of expertise and preparation from entrepreneurs they choose to fund. When examining a proposal, they want to see much more than just a good idea and a bright young man or woman; they want to see a business plan showing that the concept has been rigorously assessed and that the entrepreneur has carefully thought the issues for steps necessary to take the idea and fashion it into a successful company.[10]

At Kleiner Perkins Caufield & Bayers Venture Capital Firm there is a diligent system of evaluating business plans. A plan had to stand up to the most exacting scrutiny and toughest standards. Most plans, of course, never made it past the initial screening phases. Only the most and well-conceived plans warranted the allocation of resources necessary for a more thorough examination. For that group, they narrowed the selection down even further, spending a great deal of time investigating each plan's merits. Finally, before deciding to invest in a company, part of the staff would serve as "devil's advocate," suggesting all the pitfalls. Only the plans that made it through that process were considered for final funding. [10]

William A. Sahlman is professor at Harvard Business School in Boston Massachusetts. He has been closely connected with more than 50 entrepreneurial ventures as adviser, investor, or director. He mentions "in my experience with hundreds of entrepreneurial start-ups, business plans rank no higher than 2 –on scale from 1 to 10- as predictor of new ventures success [2]

There is more statistics about the low success of business plans to get funding, for example:

Figures from the venture capital industry indicate that roughly 85% of all business plans are rejected almost at once, 15% are given serious consideration but only 5% reach the negotiation state. [5]

How important is it, that you screen and choose and opportunity with great care? It is no accident that venture capital investors have consistently invested in no more than 1 percent in recent years of all ventures they review. [1]

How important is to have the tools that the entrepreneur needs to create and develop a successful business plan? What are the issues that the business plan has to have? What are the actual models to develop a business plan? Why are the business-plans rejected by venture capitals?

We can notice that a business plan needs to be well conceived and have all the elements related with the new venture to reach their main goal: get funding. But looking the statistics this does not happen, most of the incubators and venture capital firms reject a big percent of the business plans they received each year.

There is a great opportunity for entrepreneurs due to technological changes, the growth of VC and other aspects but figures and numbers show the lower percentage of success that the entrepreneurs have to finance their first years of operation and even worst the entrepreneurs cannot sustain the business and fail in their first years of existence.

A business plan can be particularly helpful after the start-up as a tool to understand and as a mean of guiding growth. Unfortunately this does not happen, we can look on exhibit 3 the time and reasons why new business fail, the survival record is not good among all new firms.

Overall New Business Failure Rates (United States)

Time to Fail	Percent
Within two years	23.7 %
Within four years	51.7 %
Within six years	62.7%

Reason for Failure	Percent
Economic factors	47.4 %
Financial troubles (Including excessive debt and operating expenses or insufficient working capital)	38.4%
Inexperience	7.1%
Owner neglect (Including business conflict, family problems, poor work habits)	3.4%
Others (Including disasters and fraud)	3.7%

Note: A ”dissolved” business includes those that voluntarily shut down as well as those forced to file for bankruptcy.

Exhibit 3
Source: The Wall Street Journal, October 16, 1992, p. R7 [1]

While government data, research, and business mortality statisticians may not agree on the precise failure and survival figures for new business, they do agree that failure is the rule, not the exception. [1]

Here, numbers also show us that business plans are weak or maybe after the investment is approved, the business plan is locked in a drawer.

The objective of a business plan is not only to get funding, it is a guide for the first years of operation and needs to be reviewed and updated continuously also the business plan can be use to decide if the business is really as good as you think it is, ask yourself if you really want to spend five or more years of your life doing this, we can not accept financial problems at the first years because the business plan had financial projections that would show you that, we can not accept fail because economy factors, what about the risk analysis in the business plan? And of course we cannot accept frauds and business conflicts if the business plan had a human resources and management team sections that prevent problems of that type, doesn't it?

We need to think as developing a business plan as using a flight simulator. The consequences of different strategies and tactics and the human and financial requirements for launching and building the venture can be determined and worked through without the risk and cost of working these in real time. [1]

A business plan is essentially a map to target destination. Ideally, it gets the entrepreneur from starting point to the goal, from the basic business concept to a healthy successful business. It gives a clear idea of obstacles that lie ahead, and points out alternate routes. [10]

Lenders and investors require thorough business plans and they are not receiving it so the problem is that business plans methodologies are not completely and need to cover more aspects of a business to provide them with an objective and documented overview of the company potential for success.

STATE OF THE ART

There are to many models and methodologies for business plan development, to many authors presents an outline of what do a business plan needs to include, before to present the particular model of this investigation is important to know some of the background that are in the entrepreneur process area.

The Timmons Model

A core, fundamental entrepreneurial process accounts for substantially higher success pattern among higher potential ventures. Despite the great variety of business, entrepreneurs, geography and technology, time again central themes dominate this highly dynamic entrepreneurial process.

There are controllable components of the entrepreneurial process that can be assessed, influenced, molded and altered, thereby changing in positive ways risk-to-reward equation. Throughout the careful due diligence process conducted by prospective investors, and by the founders, these themes are focus in analyzing the risk and tradeoffs and determining what can be changed, added, deleted, or reconfigured to improve the fit and balance and thereby get the odds in one's favor.

The process starts with opportunity, not money, not strategy, not networks, not the team, not the business plan. Most genuine opportunities are much bigger than either the talent and capacity of the team or the resources available to the team at the outset. The role of lead entrepreneur and the team is to juggle of these key elements in a dynamic, moving environment. Think of a juggler

bouncing up and down on a trampoline that is moving on a conveyor belt at unpredictable speeds and directions, while trying to keep all three balls in the air. That is how dynamic it can be.

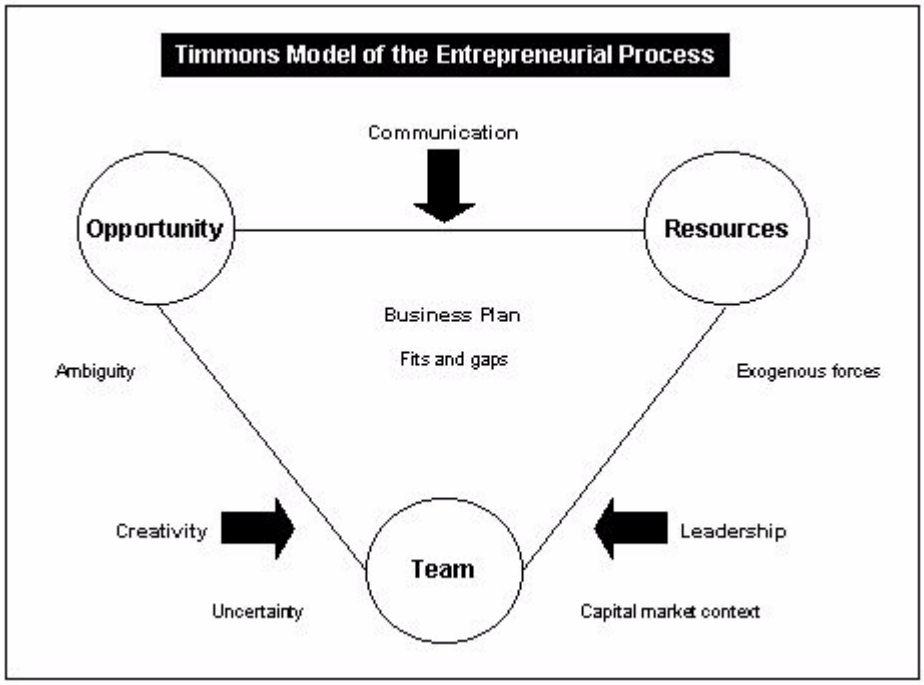

Exhibit 4 (Timmons[1])

The business plan provides the language and code for communicating the quality of the three driving forces and of their fit and balance.

In this dynamic context, ambiguity and risk are actually your friends. Central to the homework, creative problem solving and strategizing, and due diligence that lies ahead is analyzing just what are the fits and gaps that exist in the venture.

What is wrong with this opportunity? What is missing? What good news and favorable events can happen, not just the adverse? What has to happen to make it attractive and fit me? What market, technology, competitive, management and financial risk can be reduced or eliminated? What can be changed to make this happened? Who can change it? What are the least resources necessary to get this the farthest? Is this the right team? And so on. By implications, if someone can determine these answers, make the necessary changes and additions, figure out how to fill the gaps and improve the fit, and/or attract key players who can add such value, then the odds for success rise significantly. In essence the entrepreneur role is to manage and redefine the risk-reward equation.

The Opportunity

At the heart of the process is the opportunity. Successful entrepreneurs and investors know that a good idea is not necessarily a good opportunity. In fact, for every 100 ideas presented to investors in the form of a business plan or proposal of some kind, usually just 1 or sometimes 2 or 3 get funded. An important skill, therefore, as an entrepreneur or an investor, is to be able to size up quickly whether serious potential exits, and to decide how much time and effort to invest.

There's never been a better time than now to start a company. In the past, entrepreneurs started business. Today they invent new business models. That's a big difference, and it creates huge opportunities.[11]

Timmons summarizes the most important characteristics of good opportunities as:

The Entrepreneurial Process is Opportunity Driven

Market demand is a key ingredient to measuring and opportunities:

- Is the customer reachable?
- Customer payback less than one year
- Market share and grow potential equals
- 20 percent annual growth, 20 percent + and durable?

Market structure and Size:

- Emerging and/or fragmented?
- $50 million + with a $1 billion potential?
- Proprietary barriers to entry?

Margin analysis helps differentiate an opportunity from an idea:

- Low cost provider? (40 percent gross margin)
- Low capital requirements versus the competition?
- Break even in 1-2 years?
- Value added increase of overall corporate P/E ratio?

In short the greater the growth, size, durability, and robustness of the gross and net margins and free cash flow, the greater the opportunity. The more imperfect the market is, the greater the opportunity. The greater the rate of change, the discontinuities, and chaos are, the greater the opportunity. The greater the inconsistencies in existing service and quality, in lead times and lag times, and the greater the vacuums and gaps in information and knowledge, the greater the opportunities.

Resources

One of the most common misconceptions among untried entrepreneurs is that you first have all the resources in place, especially the money, in order to succeed with venture. Thinking money first is a big mistake. Money follows high potential opportunities conceived of and led by strong management team. Investors have bemoaned for years that there is too much money chasing too few deals. In other words, there is a shortage of quality entrepreneurs and opportunities, not money. Successful entrepreneurs devise ingeniously creative and stingy strategies in marshalling and gaining control of resources.

Understand and Marshall Resources
Don't Be Driven By Them.

Minimize and Control
vs
Maximize and Own

Unleashing creativity

Financial resources
Assets — Think cash last!
People
Your Business Plan

Surprising as it may sound, investors and successful entrepreneurs often say one of the worst things that can happen to an entrepreneur is to have too much money too early.

The Team

There is little dispute today that the entrepreneurial team is a key ingredient in the higher potential venture. Investors are captivated "by the creative brilliance of a company's head entrepreneur.

In the world today, there's plenty of technology, plenty of entrepreneurs, plenty of money, plenty of venture capital. What's in short supply are great teams. Your biggest challenge will be building a great team.[11]

The ventures with more than 20 employees and $2-3 million in sales were much more likely to survive and prosper. In the vast majority of cases, it is very difficult to grow beyond this without a team of two or more key contributors.

Timmons depicts the important aspects of the team as:

An Entrepreneurial Team Is The Key Ingredient for Success

An Entrepreneurial Leader

- Learns and teaches-faster, better
- Deals with adversity, is resilient
- Exhibits integrity, dependability, honesty
- Build entrepreneurial culture and organization

Quality of the Team

- Relevant experience and track record
- Motivation to excel
- Commitment, determination, and persistence
- Tolerance of risk, ambiguity, and uncertainty
- Creativity
- Team focus of control
- Adaptability
- Opportunity obsession
- Leadership
- Communication

Rounding out the model of the three driven forces is the concept of fit and balance. Note that the team is positioned at the bottom of the triangle. Imagine the founder, entrepreneurial leader of the venture standing on a large ball, grasping the triangle over her head. The challenge is to balance the balls above ahead her head. Without toppling off. This imagery is helpful in appreciating the constant balancing act from the outset, since rarely, if ever, are the three ingredients matched. When envisioning a company's future using this imagery, the entrepreneur can ask herself, What pitfalls will I encounter to get to the next boundary of success? Will my current team be large enough, or will we be over our heads if the company grows 30 percent over the next years? Are my resources sufficient (or to abundant)?

The fit issue can be appreciated in terms of a question: this is a fabulous opportunity, but for whom? It is well known that some of the most successful investments ever were actually turned down by numerous investors before the founders received backing. Time and again, there can be mismatch between the type of business, the chemistry between founders and backers, or a multitude of other factors that can cause a rejection. Thus, how the unique combination of people,

opportunity, and resources come together at a particular time and space may be the most important factor in venture's ultimate change for success. The potential for attracting outside funding for a proposed venture depends on this overall fit, and how the investors believes he or she can add value to this fit, improve the fit, risk-reward ratio and odds for success.

Equally important is the timing of all these entrepreneurial events. Each of these unique combinations occurs in real time, where the hourglass drains continually, and may be friend, foe or both. Decisiveness in recognizing and seizing the opportunity can make all the difference, particularly when the sand disappearing from the hourglass is cash. In fact, there is no such thing as a perfect time for an opportunity. Most new businesses run out of money before they can find enough customers and the right team for their great idea. Opportunity is a moving target.

The bottom line of all this is that the model, in its simple elegance and dynamic richness, harnesses what you need to know about the entrepreneurial process, and getting the odds in your favor.

Jeffry A. Timmons is internationally recognized for his work in entrepreneurship and venture capital. He was the first to hold a joint appointment with Harvard University as the MBA Class of 1954 Professorship of New Ventures and first to hold the Frederic C. Hamilton Professorship for Free Enterprise Studies at Babson. He has served as an investor, and director or advisor of several companies, including Cellular One in Boston, and New Hampshire and Maine, the Boston Communications Group, BCI Advisors, Inc., Chase Venture Partners, Spectrum Equity Investors, and Fax International.

William A. Sahlman Model

What's wrong with most business plans? The answer is relatively straightforward. Most waste too much ink on numbers and devote too little to the information that really matters to intelligent investors. As every seasoned investor knows, financial projections for a new company – especially detailed, month-by-month projections that stretch out for more than a year – are an act of imagination. An entrepreneurial venture faces far too many unknowns to predict revenues, let alone profits. Moreover, few if any entrepreneurs correctly anticipate how much capital and time will be required to accomplish their objectives. Typically, they are wildly optimistic, padding their projections. Investors know about the padding effect and therefore discount the figures in business plans. These maneuvers create a vicious circle of inaccuracy that benefits no one.

Don't misunderstand me: business plans should include some numbers. But those numbers should appear mainly in the form of a business model that shows the entrepreneurial team has thought through the key drivers of the venture's success or failure. In manufacturing, such a driver might be the yield on a production process; in magazine publishing, the anticipated renewal rate; or in software, the impact of using various distribution channels.

The model should also address the break-even issue: At what level of sales does the business begin to make a profit? And even more important, when does cash flow turn positive? Without a doubt, these questions deserve a few pages in any business plan. Near the back. What goes at the front? What information does a good business plan contain? If you want to speak the language of investors –and also make sure you have asked yourself the right questions before setting out on the most daunting journey of a businessperson's career–I recommend basing your business plan on the frame-work that follows. It does not provide the kind of "winning" formula touted by some current how to books and software programs for entrepreneurs. Nor is it a guide to brain surgery. Rather, the framework systematically assesses the four interdependent factors critical to every new venture:

The People. The men and women starting and running the venture, as well as the outside parties providing key services or important resources for it, such as its lawyers, accountants, and suppliers.

The Opportunity. A profile of the business itself – what it will sell and to whom, whether the business can grow and how fast, what its economics are, who and what stand in the way of success.

The Context. The big picture – the regulatory environment, interest rates, demographic trends, inflation, and the like – basically, factors that inevitably change but cannot be controlled by the entrepreneur.

Risk and Reward. An assessment of everything that can go wrong and right, and a discussion of how the entrepreneurial team can respond.

The assumption behind the framework is that great businesses have attributes that are easy to identify but hard to assemble. They have an experienced, energetic managerial team from the top to the bottom. The team's members have skills and experiences directly relevant to the opportunity they are pursuing. Ideally, they will have worked successfully together in the past. The opportunity has an attractive, sustainable business model; it is possible to create a competitive edge and defend it. Many options exist for expanding the scale and scope of the business, and these options are unique to the enterprise and its team. Value can be extracted from the business in a number of ways either through a positive harvest event – a sale – or by scaling down or liquidating. The context is favorable with respect to both the regulatory and the macroeconomic environments. Risk is understood, and the team has considered ways to mitigate the impact of difficult events. In short, great businesses have the four parts of the framework completely covered. If only reality were so neat.

Among the many sins committed by business plan writers is arrogance. In today's economy, few ideas are truly proprietary. Moreover, there has never been a time in recorded history when the supply of capital did not outrace the supply of opportunity. The true half-life of opportunity is decreasing with the passage of time.

A business plan must not be an albatross that hangs around the neck of the entrepreneurial team, dragging it into oblivion. Instead, a business plan must be a call for action, one that recognizes management's responsibility to fix what is broken proactively and in real time. Risk is inevitable, avoiding risk impossible. Risk management is the key, always tilting the venture in favor of reward and away from risk.

A plan must demonstrate mastery of the entire entrepreneurial process, from identification of opportunity to harvest. It is not a way to separate unsuspecting investors from their money by hiding the fatal flaw. For in the final analysis, the only one being fooled is the entrepreneur.

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Stanley R. Rich and David E. Gumpert Model

A compelling plan accurately reflects the viewpoints of your three key constituencies: the market, potential investors, and the producer (the entrepreneur or inventor of the new offering). But too many plans are written solely from the perspective of the producer. The problem is that, unless you've got your own capital to finance your venture, the only way you'll get the funding you need is to satisfy the market's and investors' needs. Here's how to grab their attention.

Emphasize Market Needs

To make a convincing case that a substantial market exists, establish market interest and document your claims.

Establish market interest. Provide evidence that customers are intrigued by your claims about the benefits of the new product or service:

- Let some customers use a product prototype; then get written evaluations.
- Offer the product to a few potential customers at a deep discount if they pay part of the production cost. This lets you determine whether potential buyers even exist.
- Use “reference installations” -statements from initial users, sales reps, distributors, and would-be customers who have seen the product demonstrated.

Document your claims. You’ve established market interest. Now use data to support your assertions about potential growth rates of sales and profits.

- Specify the number of potential customers, the size of their businesses, and the size that is most appropriate to your offering. Remember: Bigger isn’t necessarily better.
- Show the nature of the industry.
- Project realistic growth rates at which customers will accept -and buy- your offering. From there, assemble a credible sales plan and project plant and staffing needs.

Address Investor Needs

Cashing out. Show when and how investors may liquidate their holdings. Venture capital firms usually want to cash out in three to seven years; professional investors look for a large capital appreciation.

Making sound projections. Give realistic, five-year forecasts of profitability. Don’t skimp on the numbers, get overly optimistic about them, or blanket your plan with smog of figures covering every possible variation.

The price. To figure out how much to invest in your offering, investors calculate your company’s value on the basis of results expected five years after they invest. They’ll want a 35 to 40% return for mature companies - up to 60% for less mature ventures. To make a convincing case for a rich return, get a product in the hands of representative customers - and demonstrate substantial market interest.

A comprehensive, carefully thought-out business plan is essential to the success of entrepreneurs and corporate managers. Whether you are starting up a new business, seeking additional capital for existing product lines, or proposing a new activity in a corporate division, you will never face a more challenging writing assignment than the preparation of a business plan.

Only a well-conceived and well-packaged plan can win the necessary investment and support for your idea. It must describe the company or proposed project accurately and attractively. Even though its subject is a moving target, the plan must detail the company’s or the project’s present status, current needs, and expected future. You must present and justify ongoing and changing resource requirements, marketing decisions, financial projections, production demands, and personnel needs in logical and convincing fashion. Because they struggle so hard to assemble, organize, describe, and document so much, it is not surprising that managers sometimes overlook the fundamentals. We have found that the most important one is the accurate reflection of the viewpoints of three constituencies.

1. The market, including both existing and prospective clients, customers, and users of the planned product or service.
2. The investors, whether of financial or other resources.
3. The producer, whether the entrepreneur or the inventor.

Too many business plans are written solely from the viewpoint of the third constituency-the producer. They describe the underlying technology or creativity of the proposed product or service in glowing terms and at great length. They neglect the constituencies that give the venture its financial viability-the market and the investor.

We believe that business plans must deal convincingly with marketing and investor considerations.

The only way to tend to your needs is to satisfy those of the market and the investors-unless you are wealthy enough to furnish your own capital to finance the venture and test out the pet product or service. Of course, you must confront other issues before you can convince investors that the enterprise will succeed. For example, what proprietary aspects are there to the product or service? How will you provide quality control? Have you focused the venture toward a particular market segment, or are you trying to do too much? If this is answered in the context of the market and investors, the result will be more effective than if you deal with them in terms of your own wishes.

Once you accept the idea that you should satisfy the market and the investors, you face the challenge of organizing your data into a convincing document so that you can sell your venture to investors and customers.

Businesses differ in key marketing, production, and financial issues. Their plans must reflect such differences and must emphasize appropriate areas and emphasize minor issues. Remember that investors view a plan as a distillation of the objectives and character of the business and its executives. Write your business plans by looking outward to your key constituencies rather than by looking in-ward at what suits you best. You will save valuable time and energy this way and improve your chances of winning investors and customers.

Mr. Rich has helped found seven technologically based businesses, the most recent being Advanced Energy Dynamics Inc. of Natick, Massachusetts. He is also a cofounder and has been chairman of the MIT Enterprise forum, which assists emerging growth companies.
Mr. Gumpert is an associate editor of HBR, where he specializes in small business and marketing. He has written several HBR articles, the most recent of which was "The Heart of Entrepreneurship," coauthored by Howard. H. Stevenson (March-April 1985).

As we can notice, the last three models focus on 2 elements for the development of business plans: market and the team.

With this idea on mind, we propose a model for the development of business plans which particular emphasis in those 2 elements including in 8 business aspects.

OBJECTIVE

To obtain a new business plan model for technology-based projects that considers the business issues necessary to receive venture capital.

This new model cover all business aspects require to have a thorough, complete and well-convincing business plan focused on what the venture capital firms are looking for.

METHODOLOGY

The methodology of this study consisted in studying, analyzing and interpreting the actual models and methodologies proposed by some authors to develop business plans; identifying the business issues considered and those that are not and that are vital for the success in the planning and development of technology based projects.

The studies and methodologies are taken from American authors because is in this country where the entrepreneurial revolution has altered permanently the economic and social structure of this nation, we can notice this with the next paragraphs.

"The American's entrepreneurs are the fundamental piece of the economic revolution in the US and they have become the creators and leaders of entire new industries, not just a few outstanding new companies. From among the staggering raw number of startups emerge the lead innovators and creators that often become dominants firms in new industries. This is evident from entirely new industries not in existence a generation ago such personals computers, biotechnology, PC software, wireless communications and many other, that are today major sectors in the economy. These new industries have transformed the world economy and replace and displace older ones. 30 years ago, entrepreneurship research, curricula, and programs were basically nonexistence. One could count on one hand the number of universities where such a course was taught, and these were a few elite graduate schools. At 1977 was an estimated that only 50 to 75 collages and universities in America offered even a single course in new ventures and entrepreneurship. The 'revolution' in higher education has changed all that. Today well over 1,000 colleges offer such courses, and many of them offer majors in entrepreneurship or entrepreneurial studies." [1]

HYPOTHESIS

With the technology commercialization process proposed & the particular model defined at section 3, an entrepreneur can write a complete and robust business plan for technology-based projects that will have a higher possibility of attaining venture capital funding.

The particular model proposed to developed technology-based business plans takes the indispensable business aspects that a business plan must have from other models and include the most important aspects that at the moment are not contemplated and are vital for technological-based projects. At chapter 5 we present it in detail.

Particular Model

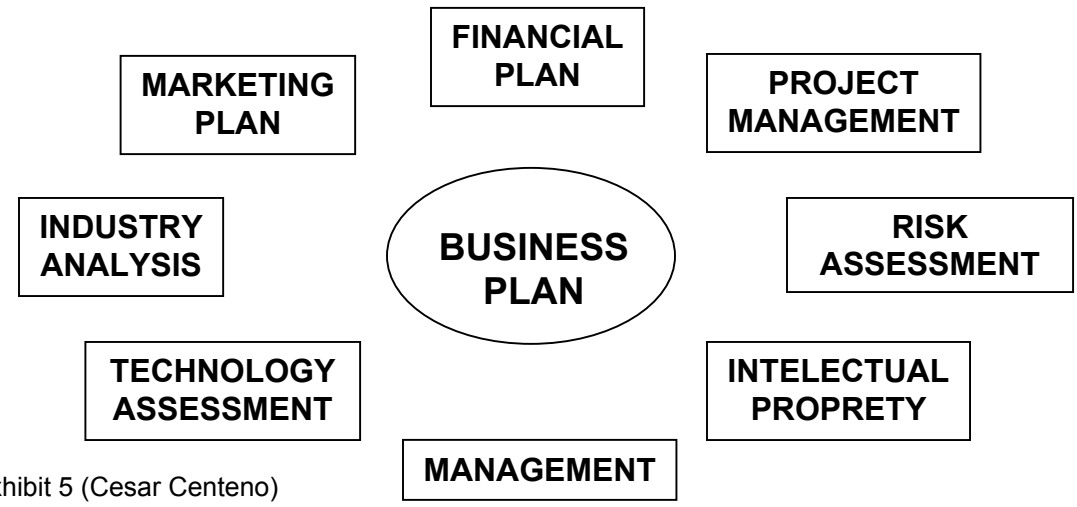


Exhibit 5 (Cesar Centeno)

CHAPTER 2

VENTURE CAPITAL FIRMS

Before to discuss about the technology commercialization process and the business plan elements, we need to understand what a venture capital firm is? And so other elements related to them. Remember that the objective of this works is to obtain a new business plan model for technology-based projects that considers the business issues necessary to receive venture capital.

So first at all it's very important to know about venture capital firms, it's investment focus, length of investment, the type of firms, etc., and try to find the way they think, what are they looking for in a business plan? All this information will help the entrepreneur to make a robust business plan.

"Venture capital and private equity firms are pools of capital, typically organized as a limited partnership that invests in companies.

The venture capitalist may look at several hundred-investment opportunities before investing in only a few selected companies with favorable investment opportunities.

In the early days of venture capital investment, in the 1950s and 1960s, individual investors were the archetypal venture investor. While this type of individual investment did not totally disappear, the modern venture firm emerged as the dominant venture investment vehicle. However, in the last few years, individuals have again become a potent and increasingly larger part of the early stage start-up venture life cycle. These "angel investors" will mentor a company and provide needed capital and expertise to help develop companies. Angel investors may either be wealthy people with management expertise or retired businessmen and women who seek the opportunity for first-hand business development.

Venture capitalists may be generalist or specialist investors depending on their investment strategy. Venture capitalists can be generalists, investing in various industry sectors, or various geographic locations, or various stages of a company's life. Alternatively, they may be specialists in one or two industry sectors, or may seek to invest in only a localized geographic area.

A venture capitalist may invest before there is a real product or company organized so called seed investing, or may provide capital to start up a company in its first or second stages of development known as early stage investing. Also, the venture capitalist may provide needed financing to help a company grow beyond a critical mass to become more successful expansion stage financing. The venture capitalist may invest in a company throughout the company's life cycle and therefore some funds focus on later stage investing by providing financing to help the company grow to a critical mass to attract public financing through a stock offering. At the other end of the spectrum, some venture funds specialize in the acquisition, turnaround or recapitalization of public and private companies that represent favorable investment opportunities.

Venture capitalists will help companies grow, but they eventually seek to exit the investment in three to seven years. An early stage investment make take seven to ten years to mature, while a later stage investment many only take a few years, so the appetite for the investment life cycle must be congruent with the limited partnerships' appetite for liquidity. The venture investment is neither a short term nor a liquid investment, but an investment that must be made with careful diligence and expertise.

There are several types of venture capital firms, but most mainstream firms invest their capital through funds organized as limited partnerships in which the venture capital firm serves as the general partner. The most common type of venture firm is an independent venture firm that has no affiliations with any other financial institution. These are called private independent firms. Venture firms may also be affiliates or subsidiaries of a commercial bank, investment bank or insurance company and make investments on behalf of outside investors or the parent firm's

clients. Still other firms may be subsidiaries of non-financial, industrial corporations making investments on behalf of the parent itself. These latter firms are typically called direct investors or corporate venture investors. Other organizations may include government affiliated investment programs that help start up companies either through state, local or federal programs." [7]

In a report presented on July 30 of 2001 by the National Venture Capital Association of the US, indicated that venture capitalists seek opportunities in life sciences sector and that the investment into existing portfolio & new companies continues at a healthy rate.

The National Venture Capital Association (NVCA) represents over 400 venture capital and private equity organizations. NVCA's mission is to foster the understanding of the importance of venture capital to the vitality of the U.S. and global economies, to stimulate the flow of equity capital to emerging growth companies by representing the public policy interests of the venture capital and private equity communities at all levels of government, to maintain high professional standards, facilitate networking opportunities and to provide research data and professional development for its members. http://www.nvca.org, next are presented the report.

July 30, 2001, New York, NY - Venture capitalists invested $10.6 billion in 982 companies in the second quarter of 2001 with a notable investment increase in the life sciences sector, according to Venture Economics and the National Venture Capital Association (NVCA). During the quarter, 13.8% of dollars invested went to Medical/Health/Life Science companies, whereas only 11.2% went to such companies in the first quarter of 2001 and only 3.95% went to such companies in the second quarter of 2000. While the $10.6 billion figure represents a 12% decline from Q1 and a 61% decline from one year ago, this quarter's investment pace is on par with the then record levels set in early 1999.

Expansion stage companies received a greater percentage of the total investment in the second quarter compared to the first quarter of 2001. In the second quarter, 54.9% of all venture capital went to expansion companies versus 47.4% in the first quarter. Both the early and later stage categories saw a slight decrease in terms of percentage of overall investment. This trend can be attributed to the commitment of venture capitalists to their existing portfolio companies.

"This quarter's disbursements statistics reflect the long-term nature of venture investing. With an eye to the future, venture capitalists are working to build the companies in their current portfolio. At the same time, venture capitalists are increasing the diversification of their portfolios, both in terms of industry sectors and stage of development. With valuations at their lowest levels in recent years, this is a very good time for patient investors to find promising opportunities," commented Mark G. Heesen, president of the NVCA.

"The increased focus on the life sciences industry, where it can take several years to develop a product, shows that venture firms are getting comfortable again with long gestation periods for their investments," said Adam Reinebach, vice president with Venture Economics. "The question going forward is, which firms are best equipped—and best funded—to maintain their portfolio companies in a more challenging economy?"

Industry Breakout

While the Internet Specific category remained at the top of the list of industry categories, attracting $3.0 billion, its piece of the overall pie fell to 28.4% from 34.3% in Q1 2001. The Computer Software and Services sector was second with $2.2 billion invested, or 20.97% of total dollars invested. Communications & Media was third with $1.8 billion or 17.6% of total dollars invested. Medical/Health (excluding Biotechnology) was fourth with $1.02 billion invested and representing 9.6% of total dollars invested.

Within the Internet-Related sector, which spans all industry categories, E-Commerce and Content companies received the most investment at $2.3 billion. Communications/Infrastructure came in

second with $1.98 billion and Internet Software and Tools came in third with $1.95 billion. The only Internet-Related category that saw an increase in dollars invested from Q1 2001 to Q2 2001 was Internet Related Hardware, which saw a 34% increase from $208.7 million to $280 million.

Venture Investment By Quarter

Time Period	No. of Comp	Avg Per Comp	Sum Inv. ($mil)
1998-1	947	$4.48	$4,243.69
1998-2	1054	$6.06	$6,386.59
1998-3	1032	$5.73	$5,911.19
1998-4	1037	$5.99	$6,213.31
1999-1	879	$8.27	$7,266.70
1999-2	1201	$10.48	$12,592.37
1999-3	1326	$10.61	$14,069.23
1999-4	1623	$15.30	$24,829.26
2000-1	1761	$15.08	$26,556.12
2000-2	1873	$14.51	$27,173.68
2000-3	1814	$15.76	$28,593.12
2000-4	1516	$13.85	$20,999.99
2001-1	1121	$10.82	$12,133.14
2001-2	982	$10.83	$10,630.86

Venture Investment By Year

Year	No. of Comp	Avg Per Comp	Sum Inv. ($mil)
1995	1340	$4.35	$5,831.98
1996	2011	$5.84	$11,734.39
1997	2686	$6.39	$17,172.89
1998	3163	$7.19	$22,754.78
1999	3972	$14.79	$58,757.56
2000	5557	$18.59	$103,322.91
2001-2	1975	$11.53	$22,763.99

Venture Investment By Industry

Industry	No. of Comp	Avg Per Comp	Sum Inv ($mil)	Pct of Inv Q2 2001	Pct of Inv Q2 2000
Internet Specific	301	$10.04	$3,022.19	28.43%	48.02%
Computer Software and Services	229	$9.73	$2,228.80	20.97%	16.52%
Communications and Media	135	$13.84	$1,868.83	17.58%	15.69%
Medical/Health	96	$10.64	$1,020.98	9.6%	2.53%
Semiconductors/Other Elect.	52	$16.20	$842.66	7.93%	5.96%
Other Products	57	$11.42	$650.77	6.12%	4.47%
Biotechnology	41	$10.92	$447.72	4.21%	1.42%
Computer Hardware	34	$8.16	$277.52	2.61%	1.92%
Consumer Related	23	$6.72	$154.67	1.45%	1.98%
Industrial/Energy	14	$8.34	$116.72	1.1%	1.48%

Venture Investment by Stage

Stage	No. of Comp	Avg Per Comp	Sum Inv ($mil)	Pct of Inv
Expansion	495	$11.81	$5,845.59	54.99%
Early Stage	260	$8.15	$2,119.15	19.93%
Later Stage	114	$17.85	$2,034.70	19.14%
Special Situation/Other	100	$4.60	$459.93	4.32%
Buyout/Acquisition	16	$10.72	$171.48	1.61%

***Internet Specific is a very narrow definition of companies that would not exist without the Internet and that would not fit in any other industry sector category.*

We can notice that there's an opportunity for entrepreneurs, but maybe most of them ask themselves the next question.

What do the Venture Capitalist and Investors are looking for?

It's important to know what the venture capitalist and investors thinks and what do they are looking for in the business plans.

The report presented at annex 1 shows the results of a study realized by e-mail. In this study we interview people that works in a venture capital firms (15; 8 USA, 5 Europe, 1 Mexico) and have different positions: CEO III, Associate III, President II, IT Manager, Director of Seed Capital, Investment Executive II, Analyst.

With the information presented at annex 1 we can start understanding the way the VC's thinks, next are presented more information related with venture capitalist.

In an interview with Felipe Chapa, General Partner at SierraMadre Ventures a venture capital firm located in Monterrey, N.L., Mexico, I asked him what do the investors are looking for in the business plans to fund the venture? He sent me an e-mail from Guy Kawasaki, CEO and Chairman of Garage.com, a venture capital firm located in USA, he told me that the e-mail was so illustrative of what most of the VC's are seeking in a business plan.

Some inside tips about what the VC's are looking for: [14]

- Less is more. Imagine that the elevator in which you're pitching is in ten-story building – not the Transamerica Tower. As Mark Twain would have said if he screened business plans, long one is easier to write than short one.

- Be reasonable in your capital requirements and financial projection. For example, if you've only invested $1,000 so far, and your business consist of one part-time employee, it's a little mind blowing to read that you are now seeking $20,000,000 in capital.

- Your idea needs to be IMPORTANT. This means it's different, unique, clever, innovative, etc. I often read a plan and the first question I ask my self is, "Where have these people been? Don't they realize they will the nth (where n exceeds 10) company that does this?" You can be in the same business as Yahoo!, Amazon.com, Inktomi, or Microsoft, but you better have a very simple way to powerfully differentiate your company.

- Cool it on the hype. "Revolutionary," "billions," "patented," "first-mover," "next generation," "unique," and "innovative" have little impact in the 21st Century. Good investors (the kind you want for your company) are going to seriously review your business model, technology, and people before they write you a check, so communicate the value of your proposition without hyperbole.

- Do you know that if just 1% of the people in china bought a Macintosh, Apple would be the largest computer company in the world? So what, right? That's the point.

  Many plans cite a study that "proves" that a market will be $20 billion by 2003. All the company needs to do is get 1% of the $20 billion market. There are three problems with this line of thinking: First, we've never seen a consulting study that didn't predict a multi-billion dollar market by 2001. Second, getting 1% of a market is easier said it that done. Third, if you say that you only need to get 1%, does this mean you're conceding the other 99% to others?

If your company makes sense, we can perceive that. You don't need to pull numbers out of the air. In fact, pulling numbers out of the air hurts your case.

- Formatting and spelling counts --if for no other reason than making the "Company Overview" easier to read. Use plain old ASCII text, or we'll see a bunch of weird characters. Don't use all caps—let your text make your case and not vice versa. And take out extraneous carriage returns so that your text doesn't look estrange.

- List the members of your team from the most important person to the least important person. Usually, this means the CEO, VP of engineering, and VP of marketing area are right up front. Lots of companies start off by listing the two secretaries and part-time accounting person. "Where's the beef?"

- If you have a truly great technology that is truly revolutionary (to coin a word), it's truly disappointing to see no evidence of ability to deliver this technology. We're big believers in leapfrogging, curve-jumping technology, but someone in your team has to have the background to deliver.

- It's a real bummer when we see a plan for "wireless Internet access at T3 speeds" and then see that team consist of people who worked for pet supply store, investment bank, and used bookstore. A solid team will have key members that have legitimate technical experience and smarts. e.g., worked for Cisco or has a Ph.D in EE from MIT.

Guy Kawasaki is also a columnist for Forbes and the author of seven books; he is formerly the chief evangelist of Apple and Apple fellow. He wrote ten money-raising power tips that first appeared in Hewlett Packard's Garage Opener - September 2000. [15]

1. Don't outsmart yourself. Refrain from reinventing securities law with sophisticated financing schemes. This game is simple: You find believers, they give you money, you build the company, and everyone gets rich.

2. Don't be paranoid. You don't want money from anyone dumb enough to sign an NDA. If you have a good idea, five people are working on it. If you have a great idea, ten people are working on it. Thus, the key is implementation, not protecting the secrecy of an idea. So talk it up, find your believers, and get on with it.

3. Be brief. One page email. Twenty-page business plan. Fifteen PowerPoint slides. One-hour meeting.

4. Acknowledge an enemy. When you say, "No one else is doing this," investors are thinking: "Then there's no market," or "These guys are clueless." Both are not conducive to getting funded. Competition at least validates that there's a market. Focus on proving how you have an unfair, sustainable competitive advantage.

5. Look for value, not valuation. True or false: The holy grail of entrepreneurship is preventing dilution. Answer: False. The holy grail of entrepreneurship is finding high-value investors who help you create a high valuation company. Look beyond the money to see what kind of recruiting, business development, and expert advice the investor can give you.

6. Eat when served. When people are offering to invest in your company, take the money. I've never seen a company go out of business that still had money. I have seen many companies go out of business that thought they could always raise money later.

7. Build the team. How do you think the system works: Get the money, then hire the team, or, hire the team, then get the money? This is not a chicken-and-egg problem. The order is, without question, Get the team then you get the money.

8. Ask for less than you need. This is counter-intuitive, but the reason you ask for less than you need is so that you can quickly declare victory ("We're fully subscribed!") and get more money. If you can't declare victory right away, some of the people who were committed may lose interest because hot deals are always over-subscribed.

9. Avoid blood and sex. Maybe your grandmother and grandfather worked together for thirty years at the family dry cleaning business. That's wonderful. But if you want to start a venture-capital funded company that's going public on Nasdaq, don't do it with relatives or spouses. When you have to hire a CFO to take your company public, who's going to tell your husband that he has to go?

10. Keep burn rates low and cash balances high. No matter how much money you raise and how much pressure you're under to expand and scale, conserve your cash. Most companies have to change their business models on their way to success. Suffice it to say that it's a bad time to try to raise more money when your old business model is failing.

William A. Sahlman present nine questions about the business every business plan should answer [2]

1. Who is the new venture's customer?
2. How does the customer make decisions about buying this product or service?
3. To what degree is the product or service a compelling purchase for the customer?
4. How will the product or service be priced?
5. How will the venture reach all the identified customer segments?
6. How much does it cost (in time and resources) to acquire a customer?
7. How much does it cost to produce and deliver the product or service?
8. How much does it cost to support a customer?
9. How easy is it to retain a customer?

Often the answers to these questions reveal a fatal flaw in the business.

The venture capital firms invest in early stage, risk-oriented businesses. A firm may look at anywhere from 1000 to 5000 business plans per year. Out of that approximately 2% will even get an interview. What is the key to get into that select group? Here are some recommendations of how to attract venture capital: [16]

- Preparation is a critical factor in funding. Allocate plenty of time and energy to it.
- Make certain all the financial records are in order.
- Identify professional references that can support the reliability and the need for the product.
- Prepare a well thought out, comprehensive business plan.
- Write an executive summary covering the main points of the business plan. This will be the first introduction of your business. Getting past the first cut will depend on how well is this summary.
- Identify venture capital firms that specialize in the type of business.
- Learn as much as possible about the funding process for each of the firms.
- How is the capital going to be used?
- If possible talk with businesses that have been funded by each of the firms.
- Write a succinct, but compelling cover letter for submitting the information to the firms.

- Select 8-10 venture capital firms that definitely wish to approach.
- Customize submission information to fit the preference of each firm, including reformatting the business plan if needed.
- Submit the applications.
- About 2 weeks after applying, call to arrange for an in-person visit, if possible.
- Do not be afraid to continue to keep in touch.

Next are presented another tips for seeking venture capital: [17]

- A company that can become a highly profitable and dominate the industry.
- A company that can go public or merge within four to seven years at a high price / earnings multiple.
- A complete management team with a strong leader.
- Principals with proven entrepreneurial, management and profit experience in the industry.
- A strong innovator, technologist or marketing person.
- A team with complementary and compatible skills.
- Principals with unusual tenacity, imagination, commitment and integrity.
- A significant competitive lead and other market advantages.
- High-value-added goods or services.
- Exclusive contractual or legal rights.
- No dominant competitor.
- A market growing at 25% or more per year.
- Clearly defined customer and distribution channels.
- The opportunity to achieve positive cash flow and break-even sales.
- Gross margins of 40%-50% or more.
- A 10% or greater profit after taxes.
- First-round capital requirements of $1 million to $10 million.
- An opportunity to recoup 5 times the investment (or more) in five years.
- Anti-dilution and initial public offering subscription rights.

Some items that particularly excite investors:

- Evidence of market acceptance (orders, letters of intent, beta sites etc.)
- Focus by the entrepreneurs and a market niche for the venture.
- A proprietary or exclusive position created by intellectual property (licenses, patents, copyrights, proprietary technology etc.), or a substantial market lead and the lack of dominate competition.

What do venture capitalists typically look for? There are three fundamental questions that venture capitalists ask: [18]

1. Does the business have the potential to grow rapidly in a few years? (Although most venture capitalists put "management excellence" as their top priority, the potential for scale is really the first measurable consideration.)
2. Is there a quality management team? Venture capitalists typically do not necessarily require a management team, be complete or to contain all of the functions. They do, however, demand that the team Is attractive enough to attract the missing members.
3. Is it likely that the business could (when it reaches the planned scale) be merged, acquired, or sold to the public to provide ultimate liquidity for the venture capitalist firm? The entrepreneur who is determined to keep the company independently private can assume there will be little interest from venture capitalists.

What should entrepreneurs bear in mind while they are in the thick of it? The following is a small sampling of advice from a variety of sources:

Be prepared "Before looking for capital, it's important that you have the fundamentals covered. Two problems can result from being unprepared. First, once an investment opportunity is rejected, it is very difficult to get it reconsidered, even with a proper introduction. Second, if your proposal is rejected by a number of firms, it may get an "over shopped" reputation. Venture capitalists trade information quite freely and a turndown by one firm may influence others.

Show you can compete globally Says John Puddington, president of the Association of Canadian Venture Capital Companies: "Products must be able to fit into a global niche specialization is the key.
Don't go to a venture capitalist empty-handed "You've got to show your commitment to risking everything you own," warns David Dvorchick, a partner at Royal Oak Securities Corp.

Don't ask for more than you unquestionable need Gary Fife, project manager for the Federal Business Development Bank, says, "Don't ask for $5 million if all you really need is $50,000. Venture capitalists aren't fools. They can spot an over-estimate right away. For that matter, they can also spot any other attempt to pull the wool over their eyes.

Many venture capitalists are leery of status-spenders Brian Marshall, merchant banking vice-president for Royal Bank Venture Capital in Toronto, says he's turned off by candidates wearing flashy clothing or driving costly sports cars. "I'm particularly leery of guys who have memberships in three or four expensive clubs and who tell you that they just can't face going through life without them," he says. Harry Mortimer, a managing partner with the Toronto-based Ven-Growth Capital Funds, jettisoned a deal with an entrepreneur who flew first-class when Mortimer himself was traveling economy.

How do you go about finding the right firm?

There are five ways of choosing a venture capital firm:

- Geographically: This may be the single most important factor today. If you are unable to attract a "local lead" investor, you will have a more difficult time raising capital. The closer the venture capitalist is to the investment, the easier it is to "add value" to it.

- Stage of Development: Many investors have a stage-of-development bias. There are some who prefer the seed capital arena, while others are only interested in later-stage investing. Make certain that your company's stage of development meets with the preferred stage of development of the venture capitalist firm.

- Amount of Capital Needed: Many venture capital firms have an upper and lower limit to the size of the investment. If your project falls far outside a firm's range, it is better not to approach them.

- Industry Specialization: The venture capital industry is witnessing greater specialization than ever before. Some Investors specialize their investments in medical technology, communications, consumer products and distribution.

- Venture Capital Leadership: It's advisable to find the lead venture capital investor first. Let this venture capitalist complete the syndication, rather than starting with smaller investors first.

Seven Tips for Successful Investor Presentations [19]

To get the financing you need to launch your business, you may need to do something which most people say they'd rather die than do: Give a presentation before a group of strangers. Of course, it's one thing to ask investors for money. It's quite another to convince them to give it to

you. If you have a good idea with lots of potential and a good business model, you have an excellent chance of getting financed.

The keys to success with investors include being able to:

- Describe the business in less than a minute,
- Articulate the problems the company is trying to solve and
- Explain how the company will make money.

There can be a lot at stake when you seek to convince complete strangers to provide the financial backing you need to ensure the success of your product or service. By strengthening your presentation skills, you can increase your chances of success. Follow these seven tips before you make your presentation to investors

1. Keep it Simple

Don't confuse your audience. The more points you try to cover during your presentation, the less likely it is people will remember them. Identify and emphasize the three or four most important issues that will be of most interest to those with whom you meet. Entrepreneurs with technical backgrounds tend to use overly technical language or take too long to explain what their product is and why it's the best. To make sure people understand you, avoid jargon, acronyms or inside-the-industry buzzwords.

2. Keep it Short

While there's no consensus about how long your presentations should be -- investor preferences range from a few minutes to two hours -- many experts agree that shorter is better than longer.
"Unless you hook the investors immediately, you'll lose them before you know it," says William Mayfield, director of the Center for Entrepreneurial Studies at Washington & Jefferson College in Washington, Pa. His advice: "You must be able to make your points in less than five minutes, using fewer than seven slides."
If you have any doubts how long your presentation should be for a particular group, ask beforehand.

3. Know your Stuff

Master all the arguments, facts, figures and other supporting data you'll need to make a convincing, ironclad case for your proposal. Dian Griesel, founder of The Investors Relations Group, a communications firm in New York, says, "You must know your stuff, or people will see right through you. People invest in credibility, and if you don't have it, they won't invest in it." Ms. Griesel recommends an hour of preparation and practice for every minute of your presentation.

4. Know your Audience

Learn as much as you can about the background of the people you'll meet with, including their names, titles, responsibilities, ages and educational and professional histories. You then can customize your presentation to your audience, determine hot buttons that may turn them on (or off) and identify areas that will help establish rapport with the decision makers.

5. Know the Terrain

Find out ahead of time the details about where the meeting will take place. The more comfortable you are with the environment, the more likely you'll be at ease. Arrive early

so you can become familiar with the surroundings and make sure the equipment works and you're happy with the lighting, seating and other arrangements. If you have questions, doubts or concerns about any of the details or arrangements, don't hesitate to clear them up beforehand. Investors won't like to be surprised, and neither will you.

6. Show your Strengths

A good idea is useless unless you have the talent, ability and resources to implement it. That's why it's important to emphasize to investors the depth and breadth of your management team, research, creativity, knowledge, flexibility and other credentials. "We're less concerned about what their projected profit and loss statements look like and more interested in whether there's a large market for their ideas, if they're the right people to enter the market, and their understanding of their own business," says Bruce Sachs, a general partner with Charles River Ventures, an investment firm in Boston. "We prefer to invest in great entrepreneurs, people who have a good track record of building businesses, can identify markets, find opportunities and are able to adapt quickly to changing situations and new challenges," he says. The way you sit, stand, gesture, speak, make eye contact and respond to questions should exude confidence. Even if your stomach is tied up in knots, don't let on how nervous you are.

7. Show your Story

Don't just tell your story. Use charts, graphs and other visuals to demonstrate your story. Bear in mind that the technology you use can send an important signal. The fewer slides you use, the more impact they'll have.

VENTURE CAPITAL CHECKLIST
Do you have what it takes?

1. What is your product/service?
2. How is it different from what is in the market?
3. What are your products core functionality and value proposition?
4. Are you planning to execute a vertical or horizontal or high-bride distribution strategy?
5. Do you have future plans for adding features or new products? What are they?
6. Verify demand
7. What is the long-term demand for your products going to look like?
8. Who is the customer?
9. What are the customers' needs and characteristics?
10. Who is the competition?
11. What are your competitors' resources, strengths and weaknesses?
12. What are the outside forces effecting competition…Technological, market and regulatory?
13. Who is likely to enter your product/service space?
14. What are the current barriers to entry?
15. What barriers can be created?
16. Is their present customer switching costs? What are they and how strong are they?
17. What switching costs can you create?
18. What is your market niche?
19. What are the characteristics of your niche in terms of customer needs, distribution, competition, suppliers and profit potential?
20. What experience is needed to compete in your industry? Does the company have it? If not can they hire it?
21. How strong is your management team? Are they a cohesive team? Do their skills address all functional areas of management, e.g. Engineering, Finance, Sales, Operations, Manufacturing, Marketing and Business development?
22. What are the management's team's strengths and weaknesses?

23. Is the management team capable of handling growth and to what point?
24. What is your business concept?
25. What competitive advantages do you have, and which ones can you create?
26. What are the company's strengths and weaknesses?
27. How can you leverage your strengths and overcome your weaknesses?
28. How much capital do you need? In the short, medium and long term.
29. Cost analysis, what are your fixed and variable costs?
30. What is your breakeven point?
31. What is your business model?
32. Where does your revenue come from?
33. What are your revenue projections?
34. Cash flow analysis
35. Do we have the employees we need? Who do we need to add?
36. Do you have a business plan?
37. Do you have A & B suppliers/distributors?
38. Where are you vulnerable to companies and people not meeting agreements?
39. Is their sufficient capital to lure investors and management?
40. What government regulations and permits do you need to operate?
41. Have you designed an employee incentive plan?
42. Have you defined your company's culture? What will its values, common practices and beliefs are?
43. Have you developed a marketing plan, brand, image and unique product message?
44. Have contracts been drafted and signed by manufactures, suppliers, distributors and employees?
45. What accounting, sales and employees performance processes need to be developed?
46. What is your company's mission?
47. What is your business/competitive strategy?
48. How will you communicate your company's mission, culture and values to employees, partners, suppliers and distributors?
49. What is your process for establishing expectations and responsibilities to employees, partners and suppliers?
50. What are your company's critical success factors?
51. What could interfere with the execution of your strategy?
52. How will you anticipate and respond to market and technological threats?
53. What needs to be done to adapt your business for foreign markets?
54. How flexible is your business model? Can you react to change?
55. What change can we create in the industry? E.g. New products, features, prices, demand, services, reach new customers, shift market demand
56. What are we going to do different from our competitors?
57. Created an open feedback system so that employees, suppliers, distributors and customers can communicate improvements, opportunities, threats and problems to management.
58. Have you set up an employee reward system?
59. Have you established your company policies and written an employee handbook?
60. Do you need a service department and if so how big, how much will it cost and what will the different components be?
61. What is the exit strategy for investors?
62. Do you have an employee stock option plan?
63. Who is on your board of directors?
64. Who are your company's advisors?
65. Will customers pay up front or what type of terms will be needed?
66. What role will R&D play in the company and how much money and resources will be needed for it?
67. What are your international plans and what resources will be needed to achieve it?
68. What is the payback period for your product?
69. What specific cost savings, efficiencies or benefits will customers gain from your product?

70. What are the major influences on our market and our customers market? How will we anticipate and adapt to market shifts? What are the most likely market changes that will take place over the next 6mo, 1yr, 3yr, 5yr and 10yr?
71. What are the barriers to commercialization?
72. Assumptions for revenue recognition
73. Define what success is in a year; what is success in two years?

SECTION 2

“Case of Study, 3DTV”

CHAPTER 3

3DTV SYSTEM BUSINESS PLAN

 In parentheses are written the chapters related and used to write each section of this business plan.

Contents

1. EXECUTIVE SUMMARY (Basic Components of a Business Plan, Chapter 6)

1.1 Business Profile

Innouva Technologies designs, develops, licenses and markets 3D Technology; electronic devices and software applications that allow standard video systems (TV set's, video projectors, video cameras, VCR's) to display 3D images using conventional video signals. What this means is that *the final video viewer is capable of seeing a 3D image "float" outside the screen* with standard video equipment.

1.2 History

Innouva began operations on January 1999 as a start-up technology business to fully commercialize 3D Technology. The company began an incubation process at ITESM (Monterrey Tech) in Monterrey Mexico, where the lab and offices are located. 3D Technology has been recognized world wide for its superior 3D effects, winning the IEEE AT&T student enterprise award in 1998 as well as being showcased in a series of national technology expos during 1999. The company was incorporated on June 7, 2000 as Innouva Technologies de Mexico S.A. de C.V. to begin commercial operations and seek first stage funding.

1.3 Product

The product via patented (pending) is an electronic circuit mixes 2 video signals from 2 points of view and generates a single video signal that can be displayed or edited with standard video equipment.

Once the generated video signal is displayed, the user needs LCD shutter glasses to see the 3D effect. The company has developed a complete solution to 3D content generation and distribution that:

- Displays full color 3D images on conventional video display systems
- Enables easy and fully compatible 3D video production
- 3D content can be distributed through any broadcasting or storage medium
- End users only need a driver circuit and LCD glasses

3D Technology cost-effectively allows a media company to have all the benefits it exploits with existing 2D videos in a 3D format.

1.4 Market

Innouva Technologies has detected important market opportunities that allow 3D Technology to be commercialized in professional and amateur video production, broadcast television, Internet applications and video games. By focusing on these market opportunities, the company and its licensees will be targeting a potential combined market of $55 billion US Dlls encompassing four different media distribution channels.

The company will focus on positioning itself as the 3D Technology video solutions provider that enables fast, easy high quality 3D-video production compatible with existing video formats and professional video equipment by:

- Attaining a patent on all its 14 product developments
- Focusing on 3D content creation special video projects
- Creating a 3D Technology trademark

Once this market position has been secured the company will begin to gradually introduce production, distribution and display 3D Technology devices into markets with business-critical processes until it becomes a de facto standard.

1.5 Business Model

The company's business model focuses on establishing 3D Technology as an industry standard, Innouva Technologies will license its intellectual property to professional video equipment/software & consumer electronics companies to manufacture and sell their 3D Technology enhanced products and market their solution to media content generators and distributors encouraging them to incorporate 3D Technology into their products. So that through the licensee's, end users can work, sell, learn and play with 3D Technology products and media.

1.6 Key Executives

Sergio Aguirre, Cesar Centeno, Carlos Covarrubias, Salvador Gonzalez and Omar Aguilar comprise Innouva Technologies's management team, together they represent a strong blend of complementary skills and business experience. Sergio, Cesar and Carlos are currently completing the Masters in Technology management and Electronic Systems degrees at ITESM University. Salvador and Omar bring complementary skills and a wealth of experience in management of new businesses, they share their parts as members of Board of Directors. Sergio, the CEO, has a blend of skills that allows him to understand the product development process from both the technical perspective and business/marketing perspective, and is well suited to managing the venture. Salvador will play a key role in securing financing for the company. He brings significant financing and business experience to Innouva Technologies having finished an MBA at Stanford and worked in McKinsey & Co. as a business consultant. He is currently involved as vice president of Latinamerica of Align Technologies, a public-share company traded in the NASDAQ market. Omar has worked at prestigious law firms and is currently secretary of the board in several companies involving companies listed in the Mexican stock exchange. He will be responsible for all legal and patent matters concerning Innouva Technologies. By the end of the year, the company intends to actively recruit a seasoned CEO, a VP of Product Marketing to help fill in the gaps of the current management team and lead Innouva Technologies to a mass-market leadership position.

1.7 Financial Requirements

This plan defines a 1½ year outlook to develop 3D Technology into a set of 14 products designed to meet the needs of the applications mentioned above. Already, 4 of the 14 products have been completely designed and tested covering the first of four generations. This enables the company

to initiate commercial operations in the video production and broadcast TV markets within 6 months of the company's launch.

Our strategy technology licensing, with licensees paying a 4% royalty fee, will allow the company to grow rapidly while returning most of the earnings to our shareholders. The result is a business that will require initial investment of only US$ 300,000 for the first round, and yet grow to gross sales of $3.8 million in 2006, with an NPV of $3.4 million and IRR of 194%.

Accumulated Cash Flows				
2002	**2003**	**2004**	**2005**	**2006**
(50,000)	(689,000)	948,210	2,455,339	3,886,074
		NPV =	**$ 3,475,854.37**	**IRR = 194 %**

Innouva seeks: an investor to provide $ 300,000 Dlls, administrative experience, commercial distribution channels and industry knowledge. The goal is to fund the business with seed capital to finish developing 3D Technology and introduce said products to market.

Innouva offers: 20% to 25% of Innouva Technologies, two seats on the board of Innouva Technologies and leverage to chose a third acceptable board member, share equity of awarded patents and a performance contract with the management team.

Exit strategy: investors will have the choice of continuing in the company by investing in its second financial round benefiting from the company's long-term projections or to negotiate with second round investors in order to achieve liquidity.

2. BUSINESS DESCRIPTION (Intellectual Property & Technology Assessment, chapter 7&8)

Innouva Technologies designs, develops, licenses and markets 3D Technology. Electronic devices and software applications that allow standard video systems (TV set's, video projectors, video cameras, VCR's) to produce and display simple and fast 'stereo' 3D images that have the following advantages:

- Full color 3D images on conventional display systems
- Easy 100% compatible 3D content NTSC video production
- High quality impressive images displayed, transmitted and stored on existing video formats.

What this means is that *the final video viewer is capable of seeing a 3D image "float" outside the screen* with standard video equipment.

This breakthrough in video technology enables video producers, TV & Cable broadcasters, Internet Video Service Providers, Distance Learning Companies, and Video Game Developers to access a media once only reserved to cinema and virtual reality systems at conventional video production costs with a superior 3D effect.

2.1 Mission Statement

Innouva Technologies is a company of people dedicated to design and development of integral cutting edge technology solutions attaining total customer satisfaction. Our goal is for Innouva Technologies to become a leading technology development enterprise providing high value pioneering solutions to our customers, growth opportunities to our employees and superior returns to our stockholders.

2.2 Background - Unleashing 3D Technology

3D Technology was conceived by Ricardo Guzman one of the pioneers of color television and developed by three engineering students at ITESM for a class. The technology is very simple in design but is powerful in 3D realism. It has market applications in video production, computer animation, education & training, R&D, Internet and video games. 3D Technology is comprised of:

- An electronic circuit capable of generating and displaying 3D video content
- LCD shutter glasses
- An infrared emitter that controls the glasses

Exhibit 6 (3DTV System)

Innouva Technologies began operations on January 1999 as a start-up business to fully commercialize 3D Technology that the founders developed. The company began an incubation process at ITESM College in Monterrey Mexico, where the lab and offices are located.

3D Technology has been recognized world wide for its impressive high quality images and superior 3D effects, winning the IEEE AT&T student enterprise award in 1998 as well as being showcased in a series of national technology expos and seminars during 1999.

Innouva Technologies has invested significant resources to date developing prototypes of product applications and physically testing the 3D Technology against competitors by comparing its key competitive advantages of greater 3D effect, full compatibility with existing formats, ease of content production and reduced costs.

The company was incorporated on June 7, 2000 as Innouva Technologies de Mexico S.A. de C.V. to begin commercial operations and seek first stage funding.

2.3 Value Proposition

Innouva Technologies will position itself as the technology provider for 3D Technology video systems by:

- Securing a patent for the technology
- Initializing commercial operations within the video production market
- Attaining key strategic allies to meet our customers needs

Innouva will license 3D Technology to professional video equipment/software & consumer electronics companies to manufacture and sell their 3D enhanced products and market their solution to media content generators and distributors encouraging them to incorporate 3D Technology into their products. The company's 3D Technology cost-effectively allows a media company to have all the benefits it all ready uses with existing 2D videos in a 3D stereo format.

2.4 Market Applications - Enabling a 3D revolution

Innouva Technologies developments will open the possibility to offer a wide range of new 3D enhanced products and services. 3D Technology is applicable in any (analog or digital) video equipment or software. The company has chosen to concentrate the application of its technology

on all existing video formats and applications in order to take advantages of existing media infrastructure.

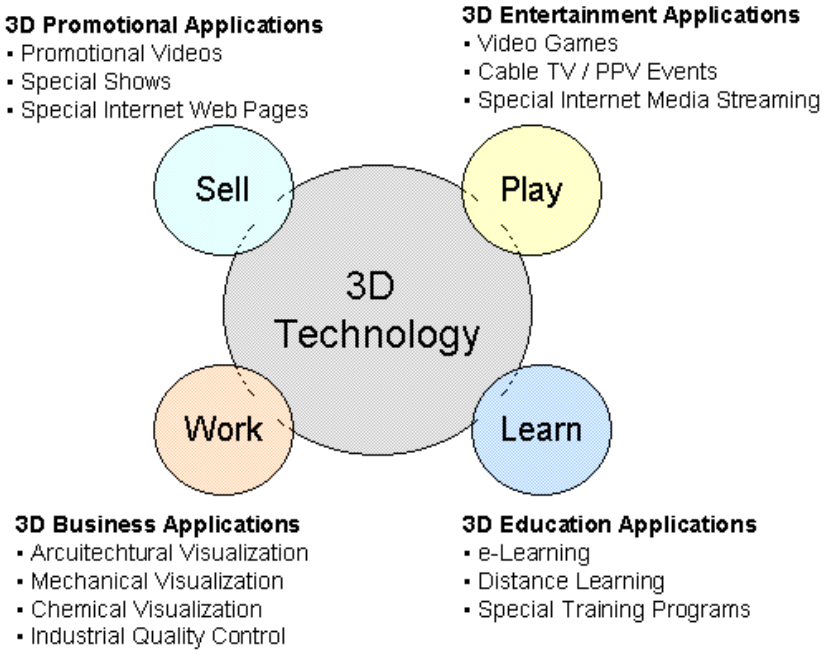


Exhibit 7 (3D Technology)

To date, the principal application of 3D Technology has been promotional video production helping companies showcase their products and services with high impact. Innouva Technologies recognizes other applications of 3D Technology (medical imaging, teleconferencing and biomechanical analysis to name a few) but will focus on the more lucrative ones shown above because there can be no assurance that sales that cover other applications will be meaningful.

2.5 Traditional 3D Systems and their Problems

The history of 3D dates back to the late 1800's when it was discovered that human vision has a "stereo" component. What this means is that human vision requires two different perspectives or points of view, the two human eyes. This allows us to see objects in three dimensions (height, width, depth), and is the reason we are able to distinguish with high precision the position, relative distance, shape and size of everything around us. In general, 3D-imaging systems work by displaying two slightly different images to the viewer so that the brain can interpret the stereo component of vision and recognize a 3D image.

	Light Polarizing Systems	*VR Systems*
3D effect	Good	Good
Image Quality	Poor	Excellent
Comfort	Very Good	Poor
Applications	Movies	Workstation based
Production costs	Very High	Very High
Compatibility with existing formats	None	None

The most common way of doing this is by polarizing or painting each point of view and for the user to have polarizing (colored) filter glasses, such as the famous red and blue glasses (Light Polarizing Systems). This is a common technique used in the movie industry. Other techniques

are related with virtual reality (VR Systems) in which the user has a stereo helmet or a controlled display system.

2.6 What 3D Technology does?

3D Technology developed by Innouva Technologies uses standard video signals to display 3D information and at the same time implements the basic principals behind human vision (3D) to conventional video display systems, systems designed for displaying 2D images. The patented electronic circuit mixes 2 video signals from 2 points of view and generates a single video signal that can be displayed or edited with standard video equipment. Once the generated video signal is displayed, the user needs to use LCD shutter glasses to see the effect. Innouva Technologies has developed a complete electronic solution to 3D content generation and display. Innouva Technologies developed the electronic circuit that creates the 3D video signals. McNaughton Inc. manufactures the LCD shutter glasses as well as the infrared emitter that the 3D Technology system uses. Innouva Technologies as a reseller of McNaughton Inc. products delivers a complete 3D Technology solution to its customers.

- Excellent 3D effects
- Excellent image quality
- Comfortable LCD shutter glasses
- Wide range of applications in different display systems
- Almost the same 2D production costs
- Full compatibility with existing video formats
- LCD shutter glasses do not cause vision side effects, but are not intended for epileptic people

Television producers, video producers, and animators have tested Innouva Technologies 3D Technology and have agreed on the ease and high quality results. As can be seen, the technology offers both complete video compatibility and a full 3D experience.

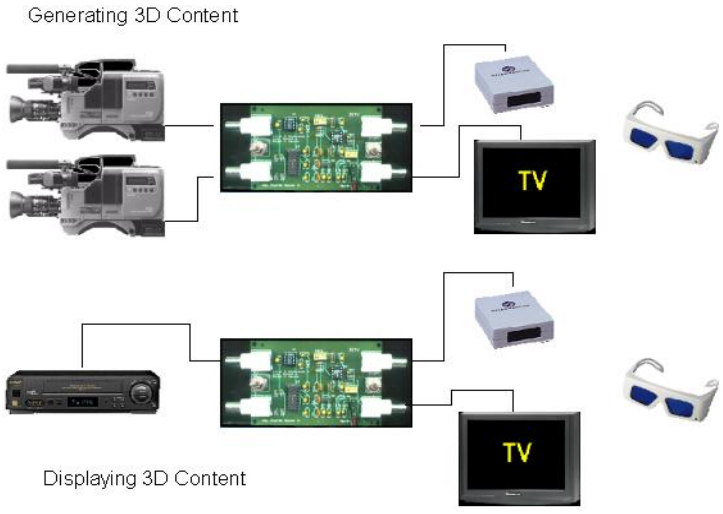


Exhibit 8 (Generating & Displaying 3D Content)

2.7 The 3D Technology Family of Products

3D Technology is a new technology with the potential to create new business opportunities in the media industry. However, in order to fully exploit this potential it is necessary to convert said technology into a family of products that complements the existing media production and distribution infrastructure without modifying it. The 3D Technology family of products consists of

electronic devises and software that allow the existing infrastructure to be exploited for 3D media production and distribution. There are 4 types of 3D Technology products:

3D Technology	Who uses the products
Content Generation Hardware	Video producers
Content Generation Software	Digital media producers
Visualization Software	Digital media distributors
Display Devices	End users

The 3D Technology family of products is fully described in the 'Future Developments' annex.

2.8 Intellectual Property

3D Technology has been fully developed by Innouva Technologies and the intellectual property (IP) rights are owned and controlled by the company. Two patent applications are in progress for Innouva Technologies, one in Mexico and another in the US. We expect to be granted the patent by IMPI (Mexico's Patent Office) by the end 2001.

	Country	Application No.	Filing Date	Status
Sistema de Televisión Estereoscópico	Mexico	9810676	December 15, 1998	Pending
Stereoscopic Television System	United States	09/460,476	December 15, 1999, claims 1998 register date.	Pending

Innouva will file for a patent in each of the 14 products that comprise 3D Technology. From these developments, new technologies in image processing applications, video, optical materials, networks and human machine interfaces will be researched. Those new technologies that prove to have commercial applications will be evaluated for potential market entry.

2.9 Product & Service Offering

In order to establish 3D Technology as an industry standard, Innouva Technologies has adopted an innovative business model in which it neither manufacturers nor sells 3D Technology devices or software. The company by licensing its technology will attain income by a combination of contract fees and royalties.

- Contract Fees: Contract fees involve any engineering services required by our clients for incorporating 3D Technology into their processes, products or specific custom implementations. They are payable partly frontloaded and partly due by service

- Royalties: Will be a percentage of the revenues received by licensees on their sales of 3D Technology enhanced products and services, they will be payable on sales occurring during the life of the patents being licensed. Royalty rates will be established depending of the particular arrangement with the licensee between 2.5% and 5%.

Innouva Technologies offers a superior 3D Technology solution for video; integrating content generators, 3D models generators and media distributors by enhancing their products & services with 3D technology.

3. MARKET & COMPETITION (Marketing Plan & Industry Analysis, chapter 10 &11)

This market analysis contains forward-looking statements based on current expectations, estimates and projections about markets in which the company intends to commercialize 3D Technology. Because of the broad range of applications and markets where the company will focus its resources, these statements are not guarantees and are subject to certain risks, uncertainties and assumptions that are difficult to predict accurately. Therefore actual results may differ materially from those expressed or forecasted in this analysis. Such risks and uncertainties include those set forth in this business plan under *Opportunities and Risks*.

The goal of this analysis is to demonstrate the company's long-term market potential to our investors.

3.1 Industry Analysis

Innouva Technologies has identified 4 markets where its technology adds value and creates new business opportunities.

- Advertising and Corporate Video Production (A&CVP)
- Cable Television
- Internet 3D content
- 3D Video Games.

The company will focus its efforts on licensing a combination of 3D Technology hardware & software tools to *video equipment and consumer electronics manufacturers* so that they sell 3D Technology enhanced products to content generators and media distributors to meet the needs of the markets mentioned above.

Innouva Technologies expertise lies in 3D Technology (video systems, imaging hardware & software) and not in content generation, video production, PC graphics creation or video game development. It would be unwise to enter these fields, considering the enormous content generation production and distribution capacity already installed.

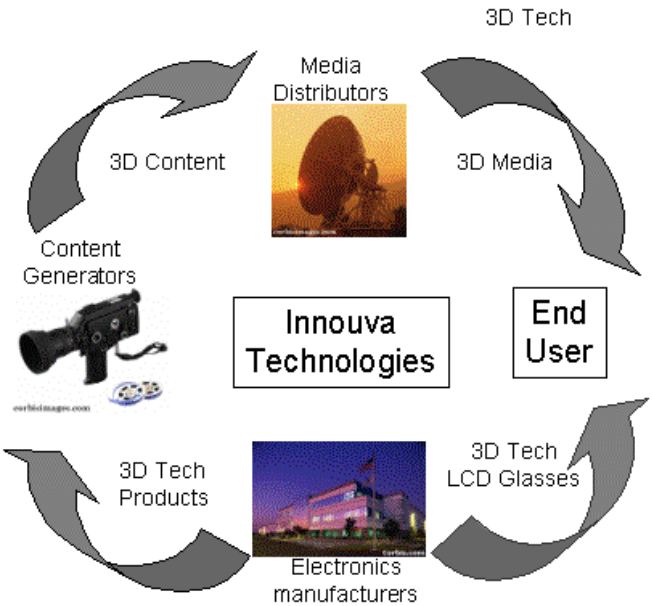


Exhibit 9 (Business Opportunities of 3D Technology)

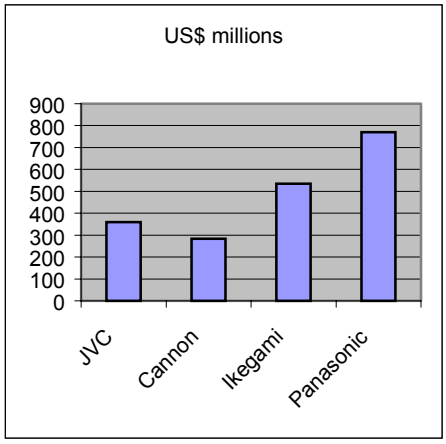
That is why Innouva will serve as the 3D Technology hub in the media industry's value chain. It will concentrate and hold alliances with 3D video content generators, 3D computer simulations and graphics generators, distance learning companies, TV & Internet broadcasters and others; but it will be the company's licensee's that will sell and market 3D Technology enhanced products to them.

Electronic manufacturing companies will be able to deliver 3D Technology through conventional market distribution channels so that content generators and media distributors can take advantage of the benefits of 3D Technology that Innouva Technologies offers.

3.2 Market General Information

A&CVP Market Profile

Advertising and Corporate Video Production houses form a very fragmented industry. These agencies provide a very personalized service to a wide range of customers. It is estimated that US companies spent $ 34.7 billion US Dlls in 1999, a number that has been growing 5 % and is expected to grow at a rate of 6% until 2004. Innouva Technologies particular interests are centered on enabling special productions, since a 3D video would not be the standard product or service offered by these. This market segment represents 11 % or $ 3.4 billion US Dlls. Innouva Technologies will be:



A technology provider, supplying the industry with 3D Technology via its licensees, professional video equipment manufacturers that comprise a vertical market.

The ultimate targeted licensees JVC, Cannon, Ikegami & Panasonic, are the leading professional video suppliers of cameras to the A&CVP market. Together we estimate that they represent a total 2 billion dollar industry.

Total Licensee market size $2 billion US Dlls, market has been growing at an estimated 3.4% annually since 1998.

The features and benefits of 3D technology delivered via the company's licensees will allow video producers to have access to a whole new medium and present their work in a different format, with the same effort and with better results.

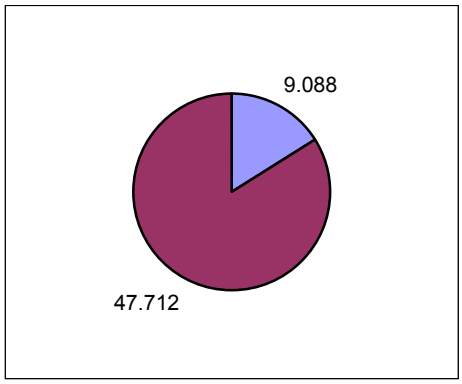
Video producers tend to welcome tools that offer such benefits.

A 3D content library must be generated first and then distributed; this is one of the main reasons why it is important to enter the A&CVP market.

- 3D Technology offers benefits which add significant value to promotional videos
- Advertising agencies and video producers operate in a highly competitive industry and therefore value the competitive advantage that 3D technology may provide them
- Advertising and corporate promotional video production market has grown at a very significant rate over the last 3 years and it is known for its appetite implementing new technologies that add impact and value to its products

Cable TV

In the US, Cable & satellite television was the second-fastest-growing industry segment (behind the Internet) in the period 1994-1999, achieving a 13.1% CAGR to reach $56.8 billion in 1999. Some of the services provided by these companies are Pay-Per-View (PPV) TV shows, in which users pay a fee in order to access the service. In the US, PPV has revenues of 16% of cable operations.
Innouva Technologies is interested in penetrating the PPV market with 3D Technology.



Billions US$

PPV events size $9 billion US Dlls, Growth 4.2 % annual.

Innouva Technologies will be:
A technology provider, supplying the industry with 3D Technology via its licensees to companies like SKY, DirecTV, also industry hardware providers such as Scientific Atlanta and Hughes Electronics.

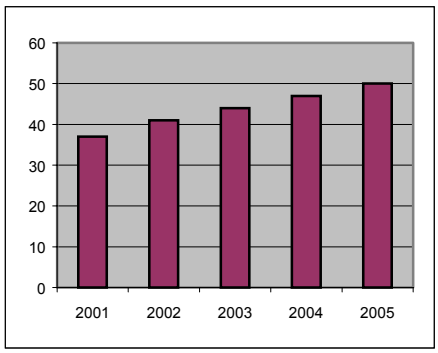
By focusing on adding media distributors to the licensee pool, the company broadens its market penetration.

A 3D content library can be generated by video production professionals that have adopted 3D Technology as well as by corporations capable of sponsoring TV shows by advertising in 3D, such content can be transmitted through conventional cable TV broadcast channels such as pay per view events and special media. The company along with its partners will seek to make this a reality.

- The cable TV pay per view market is an audience that embraces new technology.
- High revenues. Cable operators, video producers and end users will pay for the service.
- Sponsors are willing to advertise directly to their target audience.

Internet 3D

The Internet, and especially delivering rich media content over networks, has gained a prominent role as a common communications and business tool. This has all ready been used in corporate companies, 53.7% of them. Innouva Technologies will take advantage of technology trends and capture this market segment incorporating 3D media to business-critical processes such as manufacturing, training and design. Training alone represents a $ 50 billion US Dlls market by 2005, sustaining 8 % growth over the next 3 years.



Billions US $

Estimated training market size $37 billion US Dlls
Growth 5.6 % until 2004

Innouva Technologies will be: A technology provider, supplying the industry with 3D Technology via its licensees.

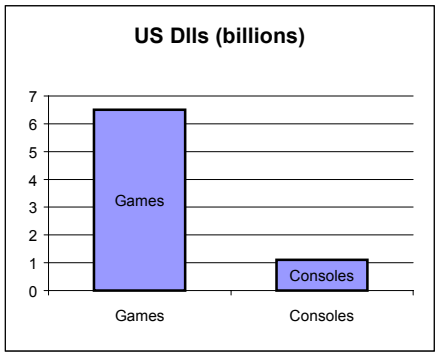
Such as click2learn.com & blackboard.com who are now recognized leaders in bringing corporate training services to corporate intranets. Today training is a 37 billion US Dlls industry.

Improved technologies for broadband internet services (better switching equipment and/or compression algorithms), higher capacity routers and fiber optic networks together with 3D Technology will allow the internet to be used as a tool that delivers:

- High quality 3D
- Easy to use sophisticated interactive technologies
- Sophisticated low cost tools and plug-in's
- Easy exchange between video formats and PC standards

Video Games

Grossing an estimated $ 7.6 billion US Dlls and having grown an impressive 7% per year, the Video Game industry represents a challenging opportunity for Innouva Technologies. The goal is to team up with a game developer and enhance its value by adding 3D Technology. Games & Accessories represent the bulk of the market reaching up to 6.5 billion US Dlls in the year 2000, console sales alone where 1.1 billion US Dlls and are expected to rise with new consoles entering the market.



Market Segment Size $6.5 billion US Dlls
Growth 5 % estimated until 2004

Innouva Technologies will be: A technology provider, supplying the industry 3D Technology products.

Targeted by the company are Ubisoft and Acclaim, two leading game & accessory manufacturers.

Innouva Technologies seeks to incorporate to its licensee program a video game developer to introduce 3D video games using 3D Technology.

- As video games become more sophisticated and interactive it is only natural that the industry embrace real 3D images
- Plug & play 3D Technology video games will have superior quality image resolution
- The video game industry users are technology oriented and embrace most new technology that enhances their experience

3.3 Market Potential - Why sell 3D Technology enhanced products?

The previous analysis describes some of the commercial opportunities that Innouva and its licensees can look forward to capturing.

These four niche markets represent the basic markets where 3D Technology adds significant value. They compile a market share bulk of ***$55 billion US Dlls*** attainable by targeting specific market players.

All references correspond to the US market and are from: 2000 Edition of Veronis Suhler's Communications Industry Forecast, for the Video Games market, data was obtained from NPD Group Inc., TRSTS Video Games study and the 2000 Annual Reports of Ubisoft, Acclaim, JVC, Cannon, Panasonic and Ikegami.

3.4 Competitor Analysis

Other 3D technologies that compete with Innouva Technologies are:

Technology	Format
Virtual Reality Systems	Workstation & Special Display Equipment
Polarizing Light Systems	Movies / IMAX
PC 3D Systems	Workstations

As stated earlier these technologies have limitations regarding the display systems that can be used with them, 3D-effect quality and compatibility to current and future standards. Some of them are simply involved in specialized markets because of technology differences. IMAX 3D cinema, is for example a 3D application of the famous movie format, Stereographics is a company which is completely dedicated to the high-end computer/workstation market. The closest comparable competitors are:

Company	Price (Dlls)	Video / VR
i-Art Corp	180.00	VR
Vrex	170.00	PC
IO Display Systems	799.00	VR
3D Magic	280.00	Video
Ami VR	399.00	VR
C3D Digital	420.00	Video
Stereographics	5940.00	Worksation
DDD	-	PC
IMAX	-	Cinema IMAX

None of these companies allows the user to generate their own 3D videos. This is clearly a competitive edge that Innouva Technologies can take advantage of. Most of these technologies are based on PC systems and most require a workstation.

	Light Polarizing Systems	*VR Systems*	*3D Technology*
3D effect	Good	Good	Excellent
Image Quality	Poor	Excellent	Excellent
Comfort	Very Good	Poor	Very Good
Applications	Movies	Workstation based	Video based
Production costs	Very High	Very High	Low
Compatibility with existing formats	None	None	100 % compatible with video systems
Eyewear	Polarizing Glasses	Head Mounted Display	LCD Shutter Glasses

3.5 Competitive Advantages

Innouva Technologies 3D Systems are unique electronic devices that allow 3D video production and simple playback display available for a wide range of display systems.

Innouva Technologies developments offer a range of benefits:

What the market wants	What the market gets	What Innouva Technologies offers	Benefits
Excellent 3D effect	Relatively poor 3D effects	The best 3D effects	Serves as a complete tool for presenting true 3D
Best image quality	Deteriorated image quality	Because the technology is fully compatible with existing video formats image quality is not compromised	Normal 2D quality standards are met so the content produced is of the highest quality
Light & comfortable viewing hardware	Bulky strange helmets	Light comfortable LCD shutter glasses	Permits users to feel free and relaxed
Best price	High costs	Low costs	Opens up several commercial opportunities
Wide range of applications	Movies and Virtual Reality	Any video display system and application	Facilitates the distribution of 3D content

Another competitive advantage Innouva Technologies has, is that its strength lies in 3D video systems. These systems require the use of TV sets of compatible projection systems for viewing. One might think that this is a disadvantage, but in fact, it has been shown that demand for television is expanding at a breathtaking pace.

By 1995, over 800 million households around the world had television, 56 percent of the total. This is expected to rise to 60 percent or almost a billion house- holds by 2005.

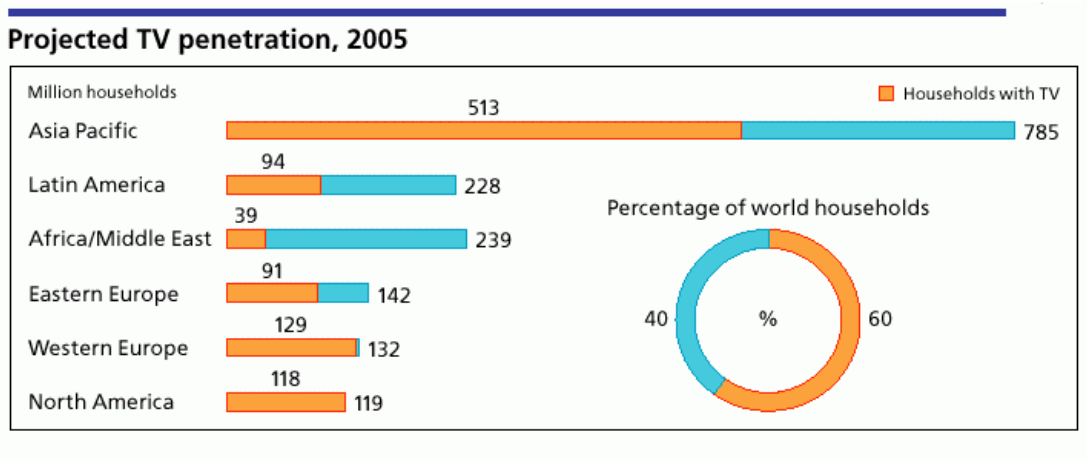


Exhibit 10 (Projected TV penetration, 2005)

This is why Innouva Technologies will focus on video systems, to secure the leadership position of such a lucrative market share against its competitors. It is evident that Innouva Technologies has a clear advantage over its competitors commercially and technologically.

3.6 Market Priority Analysis

Considering the previous industry analysis and comparison of niche markets. We performed a relative comparison of niche market size, growth, industry profitability and the technical role Innouva Technologies would have to play in each market and determined an *industry*

attractiveness factor, vertical axis, by which Innouva Technologies states the relative ease of profit gain. Here a high value (close to 1) is not so easy and a low value (close to 0) is easy.

Plotting this factor against Innouva Technologies assessment of *time requirements* to finish developing all 3D Technology products necessary for the niche market, in months (horizontal axis), we have determined a priority sequence of niche market entry.

	Dev. Time	Mkt Attractiveness	Mkt Size Billion US Dlls
A&CVP	3	0.3	2
Cable TV	4	0.52	9
Internet	9	0.6	33
Video Games	11	0.75	6.5

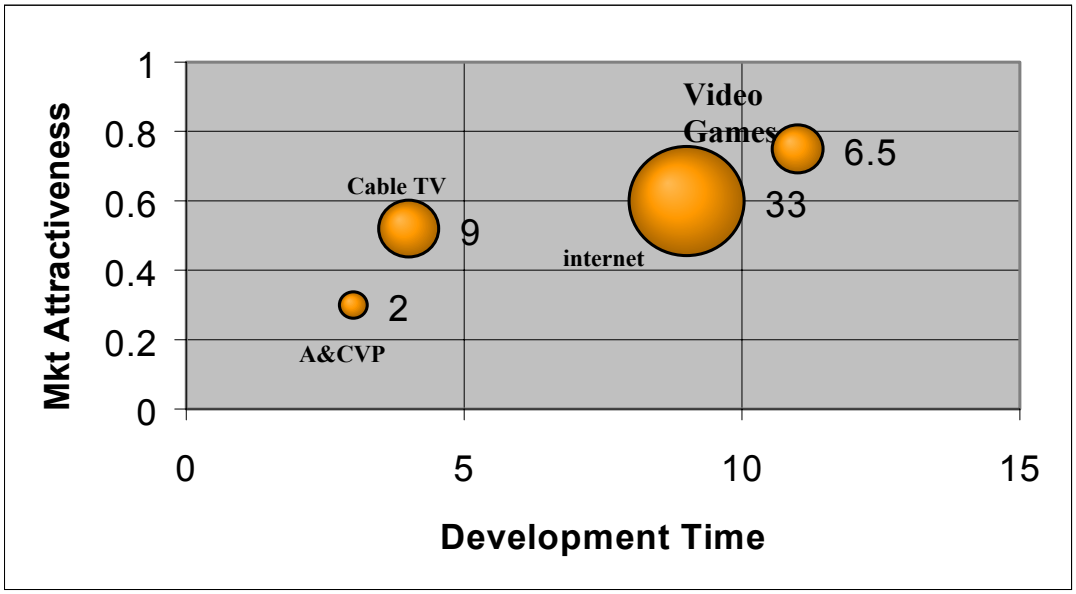


Exhibit 11 (Niche Market Size, 3DTV)

3.7 Market Strategy

Analyzing the niche market priorities, Innouva Technologies has planned out its technological and R&D developments to gradually create an expanding a 3D market that along with its allies takes advantage of each market niche it enters, preparing the ground for the next one.

1. Advertising and Corporate Video Production (A&CVP) as the launch market

   This has been chosen the launch market because it is a market where 3D Technology is viewed as a product and can generate attractive cash flow. Another reason is that 3D content must be generated before it can be distributed. By partnering with Video Producers, Innouva Technologies and its licensee's will begin to show its benefits to larger potential customers like local cable operators.

2. Cable Television as the second application market

   Once Innouva Technologies has proven that 3D Technology is a solid professional video product in the A&CVP market, local cable operators and corporate companies will team up to present special pay-per-view programming. Taking advantage of the fact that there is enough content generated to use as advertising and advertisers that know the benefits of 3D Technology. Innouva Technologies and its partners will be reaching for the first time a mass market taking in a substantial profit.

3. Internet 3D content as the third market
   As internet media companies acknowledge that Innouva Technologies is the 3D Technology provider for the cable TV industry, they will be offered to implement 3D Technology in their mission-critical processes, like training, manufacturing and design. Adding significant value to their businesses by taking full advantage of the internet and 3D Technology. Here it is important to establish a first mover status in the market.

4. 3D Video Games as the last market

   Video Game developers will be targeted to jointly capture the market. Once 3D Technology has been proved to be useful in video systems in the previous markets and in the last ones with digital media. Video Game developers can offer an enhanced experience of their games adding 3D Technology to their products. Innouva Technologies will now reach a very large mass market. Here it is important to establish a first mover status in the market and to establish licensing partnerships with consumer electronics manufacturers.

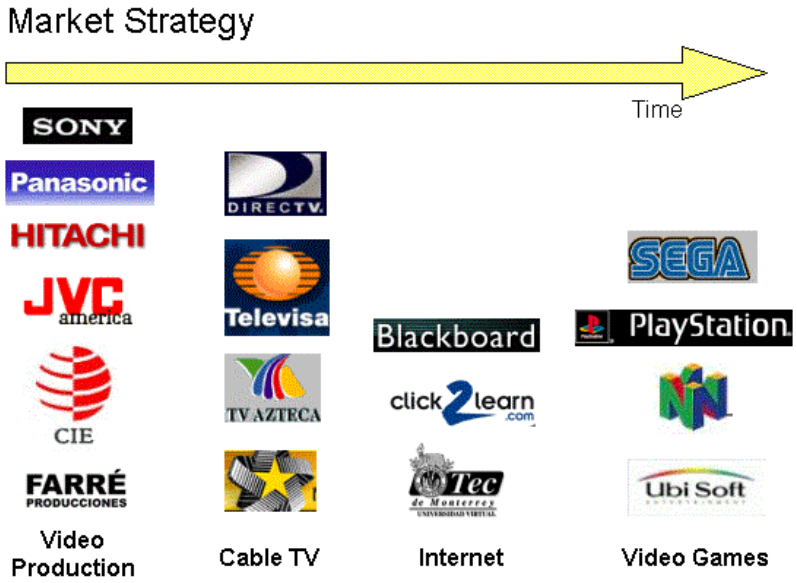


Exhibit 12 (Market Strategy)

By following this long-term market strategy Innouva Technologies will become the premier developer of 3D Technology devices and along with its licensee's a recognized player in special video applications setting the stage for other market opportunities such as medical imaging, military applications and open TV and internet 3D broadcasts.

4. THE COMPANY'S PROFILE (Management, chapter 14)

Innouva Technologies will be the world's leader in stereoscopic 3D imaging technology by the year 2005. It has developed a 3D Technology that allows:

- Display full color 3D images on conventional display systems
- Easy 100% compatible 3D content NTSC video production
- High quality impressive images displayed, transmitted and stored on existing video formats.

These benefits will generate millions of dollars annually by reducing 3D content production cost's, igniting a 3D revolution.

4.1 Company Structure

Six individuals whose diverse work experience runs from 3D Technology experts, financial and legal experts, have established Innouva Technologies. Three of us are currently completing a Masters degree in Technology management and Electronic Systems degrees at ITESM University. Three of the team members, who bring in complementary skills and a wealth of experience in the management of new businesses, share their parts as members of Board of Directors.

Innouva Technologies management team is highly motivated and talented with complementary skills and experience. However, Innouva Technologies recognizes that the team needs additional expertise and skills to rapidly grow the company into a market leader. Thus by the end of the year, the company intends to actively recruit a seasoned CEO, a VP of Product Marketing to help fill-in the gaps of the current management team and lead Innouva Technologies to a mass-market leadership position.

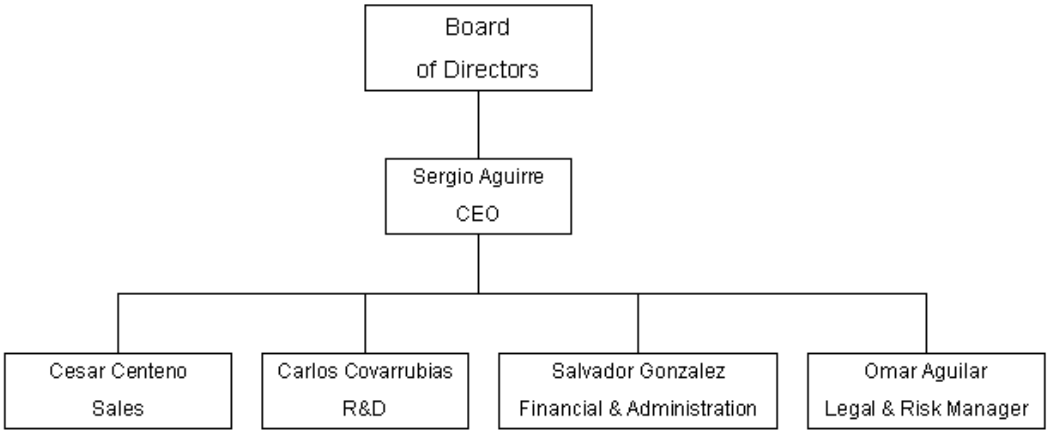


Exhibit 13 (Company Structure)

4.2 Key Executives

Sergio Aguirre is the Chief Executive Officer. He is currently completing a Masters degree in Electronics where his thesis work focuses on video image processing, helping in the company's R&D work. He has a strong background in Electronics and Communications and has had several jobs at the operative management before attending college. His blend of skills allows him to understand the product development process from both the technical perspective and business/marketing perspective.

Sergio will be responsible for coordinating the business development, incorporate crucial allies to Innouva, R&D in some of the products and developing a long-term strategy for corporate growth at Innouva Technologies until a seasoned CEO is incorporated to the business, when he will focus on new technologies and new product & business development leader. He is also actively involved in several R&D projects of Innouva Technologies, his thesis focuses on one of 3D Technology's products, a 2D video to 3D converter.

Cesar Centeno, the Sales Manager will play a key role in securing initial cash flow for the company. He brings significant financial and sales experience to Innouva Technologies having successfully worked in several student-group financing campaigns during his college studies. He is currently finishing his masters in Information Technology Management where his thesis work focuses on business plan development for technology start-up's, he has also been involved as a consultant in several IT projects for established businesses in northern Mexico.

His functions are sales and client service administration, special project leader and internal sales and suppliers' control. In the future, Cesar will become special project leader for all new technologies.

Carlos Covarrubias, the R&D Manager, is working on his Masters degree in Electronics. His thesis work focuses on converting 2D video to 3D video a product of 3D Technology. He has a background in Electronics and Communications and was first in his class both with his B.S. and M.S. degrees. He has also participated in several electronic design projects for local industry.

He will be responsible for the management of the R&D projects and new products, help out with client service activities and will control al technical documentation regarding Innouva Technologies intellectual property. Later on he will focus on R&D of new spin-off technologies from 3D Technology.

Salvador Gonzalez will play a key role in securing financing for the company. He brings significant financing and business experience to Innouva Technologies having finished an MBA at Stanford and worked in McKinsey & Co. as a business consultant. He is currently involved as vice-president of Latin America of Align Technologies, a public company traded in the NASDAQ market.

He works with the founders as a business and finance consultant aiding with client negotiations, evaluating business opportunities and helps out as a door opener with top executives, giving access to the founders to people key people in the decision process of its allies.

Omar Aguilar has worked at prestigious law firms and is currently secretary of the board in several companies involving companies listed in the Mexican stock exchange. He holds a master from Oxford University and is a PhD candidate at Warwick University. He worked as senior associate for the last 3 years at Santamarina y Steta law firm. His work was centered in mergers & acquisitions, project financing, corporate restructuring and intellectual property. He is currently the CGC of Consorcio Hogar.

He will be responsible for risk management and all legal and patent matters concerning Innouva Technologies.

Ricardo Guzman is a pioneer of color television. The original idea is his. He now holds a chair in the Board of Directors and is a key adviser and the senior scientist in all R&D projects at Innouva Technologies.

Sergio, Cesar and Carlos are co-founders of Innouva Technologies. The co-founders along with Salvador, Omar and Ricardo currently hold 100 % ownership of the company and comprise the Board of Directors.

4.3 Expected Corporate Allies

Innouva Technologies will position itself as the leading 3D imaging technology developer and systems integrator by targeting strategic licensee partners to sell 3D Technology enhanced products in targeted niche markets such as the advertising and video production markets initially, and ultimately in broadcast TV, Internet and video games.

Our objective is to secure a partner with:

- Resources for a capital injection to Innouva
- Commercial management experience
- Networks and contacts
- Industry experience

Innouva Technologies will make continued investment in R&D to ensure that its 3D Technology is used in numerous product applications and technically superior.

To this date, the founders have invested 3 years in which they have designed and tested 3D Technology's core functions and applications, planned out its transformation from technology to products, promoted the benefits of its IP within the media industry and achieved key start-up allies.

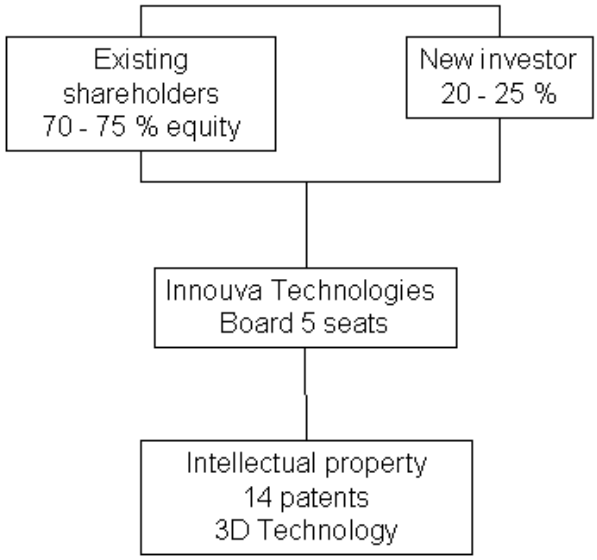


Exhibit 14 (Expected Corporate Allies)

Innouva's future investor will subscribe $300,000 US Dlls and will control 20 to 25% of the company's shares. These funds will serve as working capital for developing 3D Technology; develop a market presence and a brand.

5. IMPLEMENTATION PLAN (Project Management, chapter 9)

5.1 Future Developments

The ability of the company to profit will be substantially dependent on its capacity to transform 3D Technology into products that allow easy content production, distribution and viewing of 3D

media. To this end, company engineers have mapped out what are four generations of 3D Technology product development.

The G1 set of products comprises content generation hardware, the basic tools for video production (camera accessories and video capture), G2 is a set of software application plug-in's that complement the G1 set by allowing PC based content generation (computer graphics) & content editing (video editing systems). The G3 set is a group of software plug-in's that will allow 3D content to be broadcasted via the internet (intranets and broadband) and the G4 set comprises all hardware and software viewing devices (LCD glasses and drivers) required for 3D Technology applications.

The company will prove itself as a technology developer and expects to invest substantial funds in research & development activities, in order to continue adding value to its customers. For a brief description of all 3D Technology products refer to the 'Future Developments' annex.

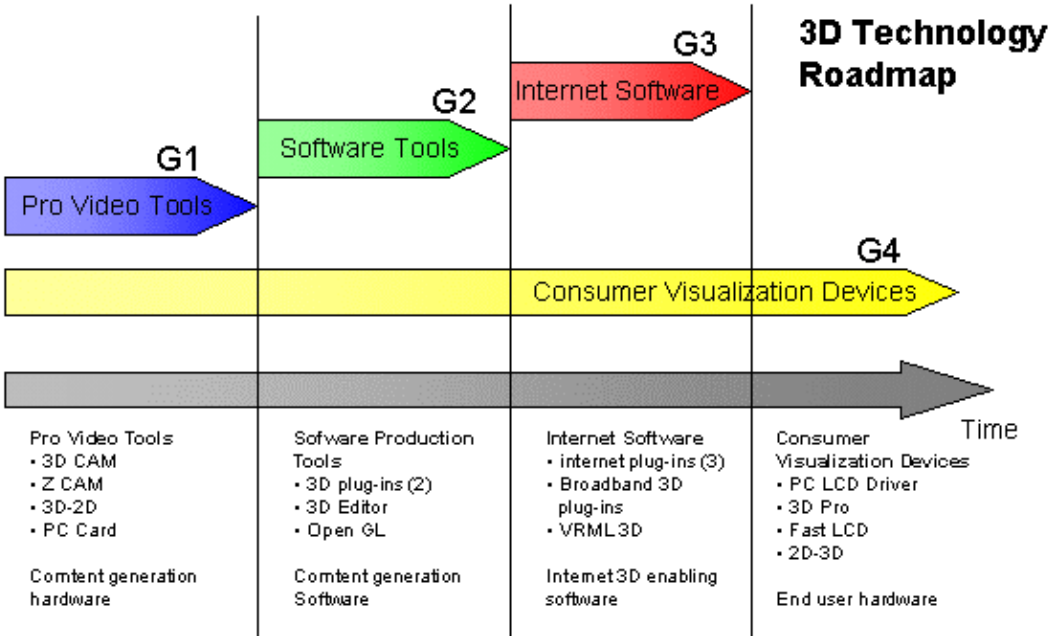


Exhibit 15 (3D Technology Roadmap)

5.2 Short Term Plan

-Focus on 3D Technology

At this stage, Innouva Technologies is completely focused on developing and patenting the tools & products (four 3D Technology generations) that will create market opportunities that allow 3D Technology to be commercialized in professional and amateur video production, broadcast television, internet applications and video games.

Innouva Technologies R&D *strategy is to convert the existing 3D Technology to a variety of market ready services & products* in industries were video applications are mission-critical processes. R&D will be conducted in-house by Innouva Technologies, not only to maintain integrity of the intellectual property, but also to ensure crucial learning that arises from the development and fine-tuning of 3D services and their compatibility with new technologies.

Besides investing significant resources to R&D, the company has set itself crucial milestones that will position Innouva Technologies as a technology development company that provides complete market solutions to its customers.

Ultimately, Innouva intends to hold special 3D video projects with local video production houses, help install a 3D video attraction in a local museum and achieve a project contract with CIE (a leading Mexican media company) where 3D Technology will significantly improve CIE's services. This will be possible with 3 basic 3D Technology tools, the 3D Cam, 3D Pro and LCD glasses.

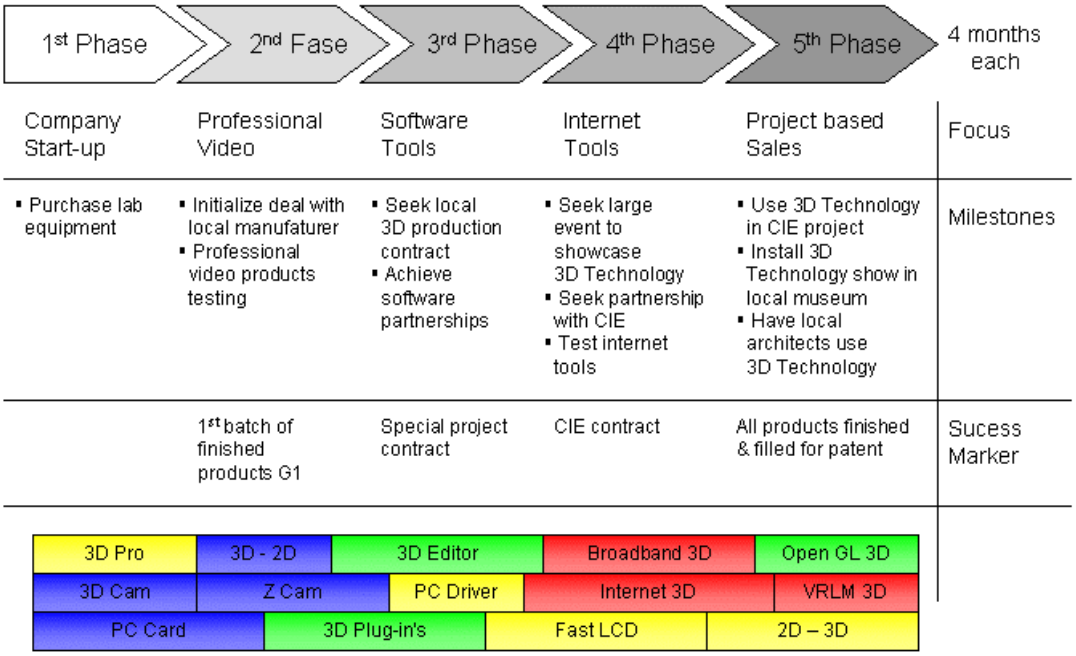


Exhibit 16 (Short Term Plan)

5.3 3D-Technology Market Positioning

– Accessible 3D-Video solutions

Once Innouva Technologies has met these milestones, video production agencies who are dissatisfied with traditional 3D imaging technology (light polarizing systems & VR, Virtual Reality Systems), will see 3D Technology as a way to join in the select group of 3D productions using video. This provides an easy, fast, reliable and high quality 3D image that can be displayed with their existing video equipment.

We have assembled a simple solution for 3D-video production that is compatible with existing formats and professional video equipment. Once this market position has been secured, Innouva Technologies is determined to move ahead in to reach its goal of taking 3D Technology to mass markets.

5.4 Long Term Plan

Following are the key factors to the success of exploiting 3D Technology:

- Successful capital raising
- Granting of patents for 3D devices and services
- Successful ongoing protection of IP

- Expanding licensing program
- Generation of cash flow for investment brand building
- Ability to secure successful and efficient strategic alliances

Innouva Technologies will focus on providing complete 3D Technology video solutions. This means, to gradually introduce *production, distribution and display* 3D Technology devices into markets with business-critical processes until 3D Technology becomes the de facto standard. The company acknowledges this task must be done with key alliances in order to break market barriers and smooth out the market's transition.

Future strategic technology licensing alliances will be comprised by professional video equipment manufacturers (JVC, Fujinon), cable and pay per view TV broadcasters (SKY, DirecTV), internet media service providers (Blackboard, Click2learn.com) and video game accessory manufacturers (Ubisoft, Acklaim) to name a few. Ultimately, the company intends to license the technology to consumer electronics manufacturers (Sony, Panasonic) that will be better positioned to deliver 3D Technology enhanced products and services to a mass market.

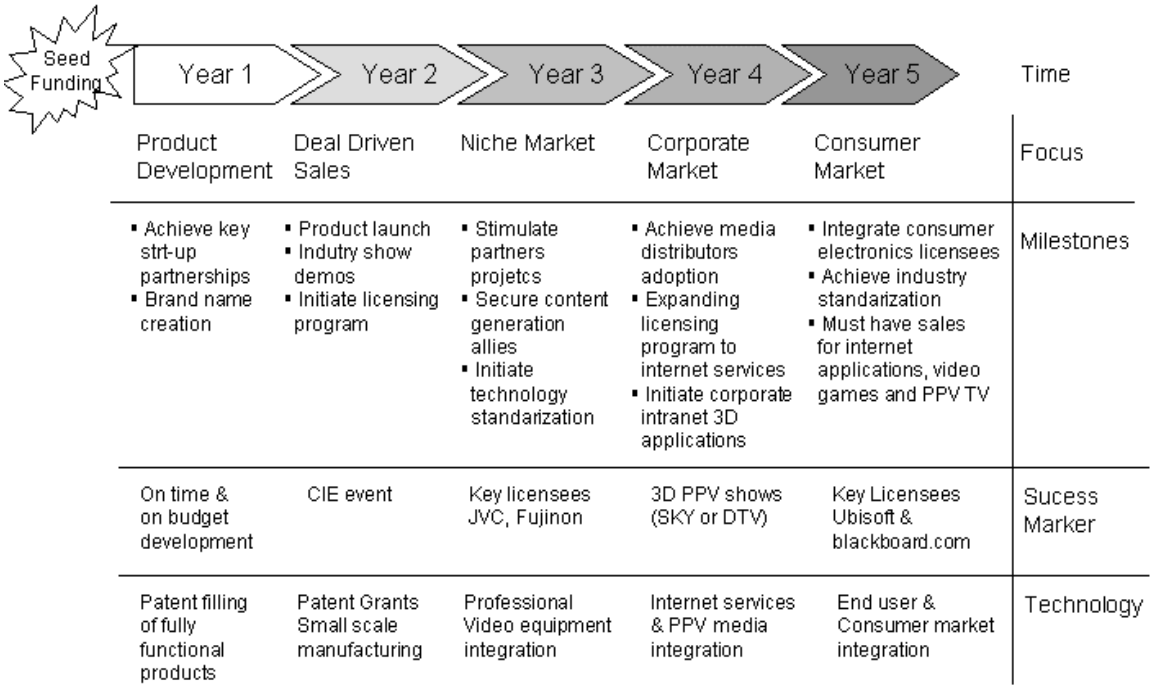


Exhibit 17 (Long Term Plan)

5.5 Licensee Profile

An important element of the company's strategy is to license its technology broadly in order to establish 3D Technology as a standard and to provide content generators and media distributors with sources for 3D Technology from established video equipment companies. An ideal licensee will be able to:

- Integrate 3D Technology to their products
- Manufacture electronic devices
- Have a direct sales contact with content generators and media distributors
- Have an established consumer electronics distribution channel
- Have an installed capability to manufacture LCD modules

Licensee's that meet these requirements present a very attractive partnership to Innouva Technologies. The company will focus its efforts in attaining the partnerships that comply with these requirements and hold significant market share in their industries.

5.6 Business Model

In order to establish 3D Technology as an industry standard, the company will adopt an innovative business model in which it neither manufactures nor sells electronic devices containing the company's technology. The company will license its technology on a nonexclusive and worldwide basis to electronics manufacturers that manufacture and sell video equipment and consumer electronics containing 3D Technology to content generators and media distributors that have adopted the technology to enhance their products and services.
The business model and strategy are designed to promote 3D Technology as an industry standard, target leading content generators and media distributors in markets the company believes represent the greatest potential for 3D Technology sales, provide content generators and media distributors with multiple sources for 3D Technology, share research and development efforts with licensees, maintain technology leadership, pursue a system-level approach and generate revenue through a combination of contract fees and royalties.

Contract Fees. These will be services provided by Innouva Technologies to its licensees in order to assist it in integrating 3D Technology to its products and services.

Royalties. Will be a percentage of the revenues received by licensees on their sales of 3D Technology enhanced products. They will be payable quarterly and generally will be between 2.5% and 5%. The exact rate and structure of a royalty arrangement with a particular licensee will depend on the marketing commitment made by the licensee.

Each licensee will receive an implementation package that includes a specification, a generalized circuit layout, database of a particular product that the licensee intends to develop and test parameter software.

By covering these two activities, Innouva Technologies offers its partners a complete, reliable and fast 3D-Video solution that enhances their products and services. In this manner end users will experience a new real 3D experience.

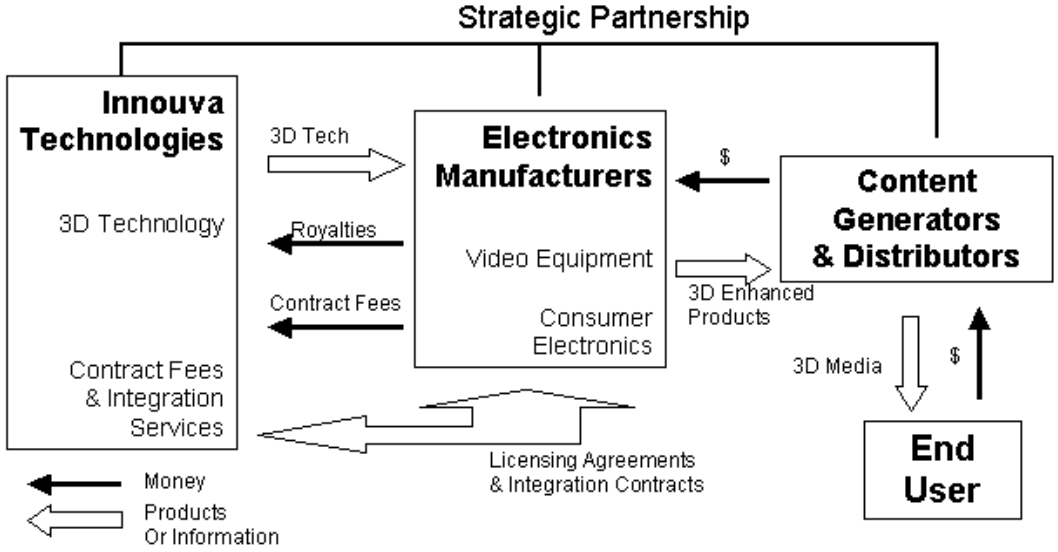


Exhibit 18 (Strategic Partnership)

5.7 Sales and Marketing

During the start-up phase, the company will focus on attaining a series of special 3D video production projects with key allies that will allow Innouva to prove 3D Technology worthy for mass commercialization. The goal of this is to prove Innouva Technologies business model, attain needed cash flow and to use the time it takes the patent filings run their due process.

For each project price, service conditions, delivery and other specific details will be negotiated with each client based on the projects needs for success. Since most of these commercial activities take place in Mexico, it gives Innouva a surprise edge for when it is ready to move into the world market.

Consistent with the company's business model, sales and marketing activities are focused on developing relationships with potential licensees and on participating with existing licensees in marketing, sales and technical efforts directed to media companies. In many cases, Innouva Technologies will dedicate substantial resources to market to and support media companies. The company's sales and marketing efforts will include applications engineering and other technical support for media companies, as well as trade shows, advertising and other traditional marketing activities.

5.8 Key Targeted Strategic Alliances and Partnerships

During the technology development phase, Innouva Technologies will rely on key partnerships in order to secure the market position it has targeted. It will also allow the company to certify 3D Technology products compliance to industry specifications and its acceptance in small markets. Most of the following partnerships have been already secured. For some of them, we present annex to this business plan a copy of their letter of intent to work with Innouva Technologies:

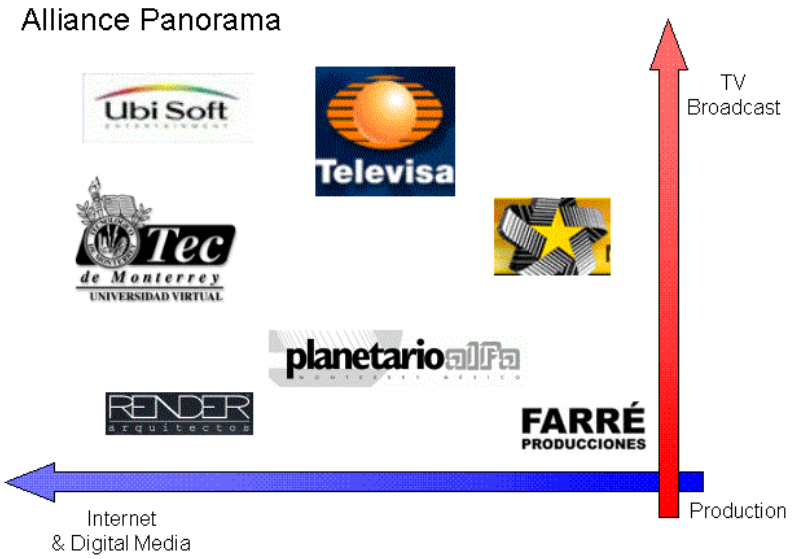


Exhibit 19 (Alliance Panorama)

- McNaughton Inc. (Nuvision Technologies) is the key provider of LCD shutter glasses and will continue to be through a reseller partnership granted to Innouva Technologies.
- Professional Video Producers are already testing 3D Technology and providing suggestions for market entry.
- Computer Animation Producers are also testing 3D Technology and laying key suggestions for the PC applications tools. They are also be central for internet and video game markets

- Museums and special local event organizers are interested in setting up a small video theater showing a 3D video in their exhibit halls.
- Local architectural rendering firms intend to use 3D Technology products to enhance their services by delivering 3D videos of the renderings their clients solicit from them.
- Local TV broadcasters are interested in broadcasting small pilot TV shows using 3D Technology during low ratings hours, specifically soccer games from the local soccer teams.

6. OPPORTUNITIES AND RISKS (Risk Assessment, chapter 13)

6.1 Legal Issues

There are no legal issues surrounding Innouva Technologies and 3D Technology. Two patent applications are in progress for Innouva Technologies, one in Mexico and another in the US. We expect to be granted the patent by IMPI (Mexico's Patent Office) by the end 2001. A patent protection insurance policy; as well as provision for the patent protection-fighting fund will enable Innouva Technologies to legally fight possible challenges to the patent.

Innouva will protect itself by a web of intellectual property including granted and pending patents; trademarks and trade secrets. The patents extend to both the devices and the 3D content production techniques. In the case where 3D Technology adds value to third party products, the company will seek special partnerships in order to penetrate the market. This combination of product and process protection provides strong IP protection. The technology will be further protected due to:

- Patent protection fighting fund provided by retained earnings
- An 'in-house' experienced intellectual property litigation attorney
- Filling and attaining a patent on all its 14 product developments

6.2 Business Risks

Critical to the success of Innouva Technologies is the identification of risks and risk mitigation strategies, including:

Risk Area	Risk Reduction Strategy
3D technology does not perform as expected	Extensive testing already successfully completed
Allie production capacity is not sufficient to build a 3D content library	Commercialization and use of 3D Technology will not be licensed on an exclusive basis in order to maintain as many as possible options for content generation.
Patent protection is weaker than expected	Increase investment in IP protection strategies
Market entry barriers	Ensure maximum penetration before moving to next market segment
Strategic supply agreement breaks down	Establish several strategic supply agreements from the beginning
Market slow to change and difficult to excite as to the benefits of Innouva Technologies	Focus on high-end applications where 3D media is valued most
Content generators slow to change	Promote same 2D production ease of 3D content generation with video producers
Video Equipment providers copycat	Proprietary technology is protected by patents

Revenue Concentration	Because revenue is based on royalty fees, it is very difficult to establish a smooth cash flow.
Rapid Technological Change	Innouva Technologies will concentrate on generating new technologies to keep its leadership
Undefined incubation status at ITESM University	Since its foundation, Innouva Technologies has worked at ITESM University in Monterrey Mexico. All developments have been done at the school using school equipment. However, the school president and its trustees have expressed that the school has no interest in being a part of the company, but is happy to help out.

6.3 Growth Opportunities

As determined by the previous market analysis, 3D Technology presents a promising business opportunity in several markets:

- A&CVP. The Advertising & Corporate Video Production market has been the first business opportunity to be explored. It is estimated that its size in Mexico alone is 40 million US Dlls / year.
- Cable TV. The cable TV industry is very open to accepting new technologies, especially in the pay per view sector. Its size is also of importance but it will be through key partnerships that the market will be tapped, such as DirectTV or SKY networks.
- 3D Internet, this market is known to accept any thing that has a new service based on new experiences, 3D Technology delivers just that. Key partnerships such as ASP's and backbone hosting services will be key.
- Video Games. This industry is very open to accept new technologies, but very difficult to break into. Its size is also of importance but it will be through key partnerships that the market will be tapped, such as Video Game developers and accessory manufacturers.

Innouva Technologies recognizes other opportunities such as medical imaging, military applications, teleconferencing, industrial and biomedical analysis, but will not explore these applications until further review.

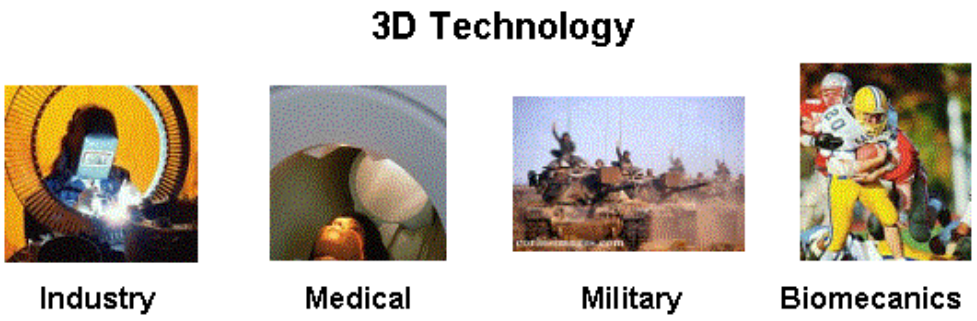


Exhibit 20 (3D Technology Opportunities)

- Medical Imaging. Medicine can gain a new and easy to use instrument with 3D Technology allowing for doctors to see 3D models of computer-generated images, or from operating room cameras.
- Military Applications are always trying to deliver the upper hand in combat systems, 3D Technology could help in telemetry control systems, recognizance applications or simulations.
- Teleconferencing in 3D could help people in different parts of the world see the same things with the same reality that their colleagues see in the field.

- Industrial applications could benefit from 3D Technology in quality control systems and telemetry systems for hazardous environments.
- Biomechanical Analysis is used in sports medicine and it studies the body's movements, having 3D Technology give a real perspective is of great significance to this type of application.

7. FINANCIAL PLANNING (Financial Plan, chapter 12)

Because of the complexity of modeling a royalty fee based business model applied to different markets, Innouva Technologies has divided its financial analysis in two parts, a short-term analysis and a long-term one. The goal is to simplify the company's expected results and its requirements to our investors.

The short-term analysis covers a 1 year & 4 months horizon and shows how Innouva Technologies plans to develop 3D Technology products (during the first 3 phases of development). The long-term analysis shows how one device of the 3D Technology family adds value to one of the markets the company plans to penetrate during a 5-year period. Even though this business plan only contemplates the start-up phase, the company thought it best to estimate the technology's market value over the long run.

7.1 Assumptions

The following financial analysis is based on the following assumptions and suppositions:

- All figures are in real, United States Dollars
- Gross margin and working capital balances are based on industry averages
- Development expenditures are focused on product and business development

7.2 Short Term Analysis

During the start-up phase Innouva Technologies has stated it must develop 3D Technology into a set of Hardware/Software devices that allow easy content generation, distribution and display of 3D media. It is key for Innouva Technologies success that 3D Technology is developed with the necessary equipment and that is what the expenditure budget reflects.

3D Technology Development Costs

Equipment	Quantity	
SUN Workstation	1	22,000.00
SG Workstation	1	18,000.00
Video IC's	4	2,000.00
Video DSP board	1	10,000.00
Ferro electric shutters	4	15,000.00
Custom Pi-cells	10	10,000.00
Used Professional Cameras	1	15,000.00
Custom Optical components	2	10,000.00
PCB manufacturing	10 projects	8,000.00
Basic mechanical/housing work	10 projects	5,000.00
Basic Electronics Components	10 projects	5,000.00
	Totals	120,000.00

Costs for operation and salaries are contemplated to be $89,500.00 and $90,500.00. With this the company has enough capital to finish developing 3D Technology products and to seek some customer applications, such as special video projects.

Revenue for the first year is moderate ($250,000), but sufficient to position the company as the market leader of 3D Technology and prove its business concept, allowing the company to set its eyes on new and larger markets. The following table shows how and when Innouva Technologies expects to start servicing clients.

Average Special Project Revenue Assumptions

Product	Sale Price/ Unit	Revenue / 1st Avg Client Phase	2nd Phase	3rd Phase	4th Phase	5th Phase
3D Cam	2,500	2,500	-	-	10,000	15,000	25,000
3D Pro	500	1,000	-	-	4,000	6,000	10,000
LCD Glasses	300	6,000	-	-	24,000	36,000	60,000
Video Production Services	3,000	3,000	-	-	12,000	18,000	30,000
Total Revenue (US$)		12,500		50,000	75,000	125,000
					250,000	**Total**

7.3 Long Term Analysis

Innouva Technologies plans to meet all its start-up milestones and have the required patents awarded by early 2003. At that moment, the company will initiate a licensing program to deliver 3D Technology to consumer markets.

The company will focus on implementing its business model and leverage the high manufacturing costs to a partner company.

To illustrate 3D Technology's long-term market value, we have estimated the impact that one device has on its application market. The device '3D Cam' is a device that enables any professional video camera to capture 3D video.

The company plans to license it to companies such as JVC, Cannon, Ikegami and Panasonic so that they can sell '3D Cam' as an accessory to their cameras. Professional video camera annual sales revenue of the company's targeted licensee's has been estimated from their posted 2000 annual sales report as stated before in the 'Market Analysis'.

Of those sales, the company foresees that only 15% would be a 3D Technology enhanced product. By setting a royalty fee of 4%, the company can expect to achieve the following results by securing partnerships with all its targeted licensees:

Average Royalty Revenue Assumptions

Product	Targeted Licensee	Annual Sales Revenue (US$)	Expected 3D Tech revenue %	Annual Royalty Fees (US$) 2003	2004	2005	2006
3D Cam	JVC	360,000,000	15	648,000	654,480	661,025	667,635
	Cannon	284,000,000	15	511,200	516,312	521,475	526,690
	Ikegami	535,000,000	15	-	963,000	982,260	992,083
	Panasonic	770,000,000	15	-	1,386,000	1,427,580	1,441,856
Contract Fees	For each licensee	-	-	40,000	40,000	-	-
Total				1,199,200	3,559,792	3,592,340	3,628,263
						11,979,595	**Total**

Considering a slow market growth of 1%.

7.4 Summary of Financial Results (Expected Scenario)

Set out below is a summary of the expected results of a timely investment in Innouva Technologies. We cannot emphasize enough that these results represent only one product of 3D Technology.

The market impact of the remaining 3D Technology tools and devices where not included to simplify the analysis to our investors and also due to lack of specific market information. They will be analyzed in full detail in other company documents. It is also important to note that the long-term return on investment depends on the ability of the company to secure as many licensees as possible.

Proforma Cash flows

Year	2002	2003	2004	2005	2006
Revenue Growth		100%	197%	1%	1%
Accumulated Cash flows	**(50,000)**	**(689,800)**	**948,210**	**2,455,339**	**3,886,074**
Cash flow	(50,000)	(639,000)	1,637,210	1,507,129	1,430,735

IRR	**194.4%**
NPV	**3,475,854.37**

Discounted Multiple	**39,973,333**

7.5 Ask and Offer

Innouva Technologies is seeking an investor to provide $ 300,000 Dlls to fund the business with working capital to finish developing the 3D Technology and introduce its products to market. In return the investor will receive from Innouva Technologies:

- 20% to 25% of the ordinary equity of Innouva Technologies
- Two seats on the board of Innouva Technologies and the ability to suggest a third
- Share equity of awarded patents
- Performance contract with the management team

7.6 Exit Strategy

In 1½ years, Innouva Technologies will have a series of products ready to ignite its proposed 3D markets with a healthy first-mover to market position, a brand name and a solid commercialization plan. At this point, investors will have the choice of continuing in the company by investing in its second financial round benefiting from the company's long-term projections or to negotiate with second round investors in order to achieve liquidity.

ANNEX

FUTURE DEVELOPMENTS (Project Management, chapter 9)

This table shows a brief description of all 3D Technology products.

Function	Product	H / S	What it does?	Benefits
Content Generation Hardware	3D CAM	Hardware	Allows the user to tape 3D content with one camera	Simplifies 3D content production from 2 cameras to a single standard camera
	Z CAM	Hardware	Allows to determine the distance between objects and the camera	Allows seamless 3D virtual set production
	3D-2D	Hardware & Software	Allows 3D content to be displayed in 2D	All 3D content can also be viewed in standard 2D
	PC Capture & Output card	Hardware	Allows PC based systems to process 3D videos	Easy PC based 3D editing
Content Generation Software & Visualization Software	3D Plug-in's	Software (2) minimum	Allows automatic 3D animation and computer graphics rendering	Allows easy and "same as 2D" production of computer graphics
	3D Editor	Software	Allows 3D editing in established editing suites	Easy & professional editing capabilities
	Internet 3D plug-in's	Software (2) minimum	Allows video players (windows media, QuickTime) to display 3D effects	Internet broadcast of 3D content
	Broadband 3D plug-in's	Software	Takes advantage of the benefits of broadband networks	Better 3D images and faster download time
	VRLM Stereo 3D	Software	Allows complete interactive 3D models to be downloaded to a PC via de Internet	No need for video, VRLM 3D generates the stereo 3D effect in the user's PC
	OpenGL 3D	Software	Controls the rendering engine in video games for true 3D graphics	Opens video game market
Display & Visualization Devices	PC LCD Driver	Hardware	Controls the LCD shutter glasses for use on a PC internet application	Allows internet users to have the same 3D effect as in a TV set
	3D PRO	Hardware	Allows the user to display 3D content from a video signal	Simple display device, plug & play
	Fast LCD	Hardware	Fast response LCD Shutters for a new design of glasses	Improves 200 times 3D resolution in CRT displays
	2D / 3D	Software	Converts any existing 2D video signal into a 3D video signal	Opens existing 2D library to 3D display systems. Allows "same as 2D" production and distribution

SECTION 3

“Personal Contribution”

CHAPTER 4

TECHNOLOGY COMMERCIALIZATION PROCESS PROPOSED

It is common to read in magazines and newspapers upon the new millionaires that with a good idea created and developed large transnational enterprises, they make believe this an easy task but the reality is that to undertake a business is not an easy task and it is more difficult when it is about a technology-based business.

During the last decades in countries as USA, Canada and Western Europe the concept of entrepreneurship has been increased and a great number of new businesses have been consolidated. This is consequence to the support received by the government and universities that have created business incubators as well as to include educational programs where provides the students the required knowledge and bases to undertake its own business.

If we turn around to Latin America and specially to Mexico we can see that the previous has not occurred and we have a great way to cross mainly when thinking about generating technology-based businesses.

Starting a business is not easy, the beginning requires several sacrifices, lots of work hours spent on looking at what are the possibilities; I usually see it as riding the stock market, some days are very good which means the stock is up, some days are bad meaning that the stock is down, depending on the confidence one has on the future of the business. One must learn to make decisions fast with little information, analyze information, listen to different advisers and make decisions with no regrets.

It is important to note that the idea and technology development can take a short period of time in comparison to the business development. Having an innovative technology does not warrantee commercial success.

Taking technology to market takes a long time, one must be prepared for business failure or even worst, technology not meeting the markets needs.

A business plan help identify the milestones that will enable the business to exploit the technology commercially, at the same time it clearly identifies strengths and weaknesses, opportunities and threats that the business must face.

There are to many aspects to consider for technology commercialization and the truth is that actually do not exist a clear process with clear steps to achieve success in introducing a technology-based product to the market.

In this work I have included those business areas that in my point of view are required for the development of technology-based business plans. In the next chapter, we will analyze them, but what technology commercialization process is?

Next I propose a technology commercialization process based in 5 phases:

- Idea (concept & creation)
- Concept Development (prototype)
- Business Development (business plan)
- Incubation (start-up & growth)
- Business Consolidation (maturity & decreasing)

Diagrama de comercializacion

Esquema de Comercializacion

Idea

The first phase of the commercialization process is to generate and conceptualizes the idea.

My suggestions points to consider in this phase are the following ones:

- To identify that the generated idea is feasible of carrying out
- To identify that the idea's goal is realistic
- To verify that this particular idea doesn't already exist in the market

Creativity Process

The creativity process usually consists of several stages from finding/defining a problem, brainstorming ideas, evaluating them to implementing the key solutions.

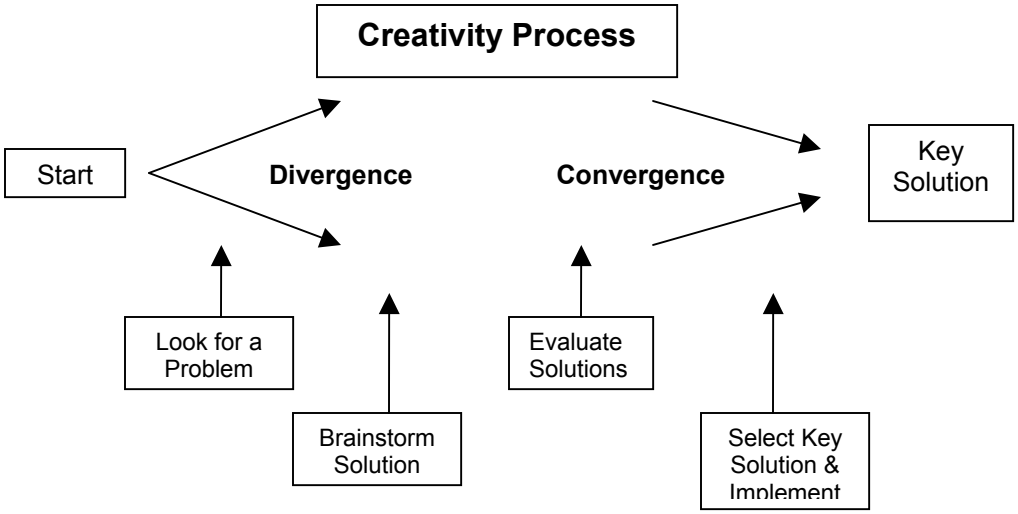


Exhibit 23

We shall look at how some authors approach the subject of creative process. You should be able to find common characteristics among the three approaches discuss here.

The Divergence-Convergence Approach basically consists of four stages:

1. Look for a problem to solve.
2. Brainstorm solutions and ideas to the problems.
3. Evaluate them.
4. Select key solution and implement it.

Having thought about a problem or a topic, diverge to get a broad base of ideas and solutions - good ones or bad ones - with the help of tools like brainstorming and inversion techniques. With a large bunch of ideas and solutions, evaluate them and eventually converge to look at the ones that are implementable.

Having identified a problem, do not accept or reject a particular solution too early. Make sure you have explored other possibilities. Deciding too early may lock one's mind into evaluating a particular idea / solution only and cause him not to think of other possible solutions.

In the process of trying to solve a problem, many researchers had discover other more interesting problems along the way and switch their attention on them, thus ended up in discovering or

inventing solutions for problems they had not set out originally to solve. So it is important to allow the problem to change and form new one.

Concept Development (Prototype)

The objective of this phase consists on passing from the idea to the prototype.

During this phase it is necessary to undergo a technology assessment process to justify the development, is also important to begin the search what intellectual property rights can be claimed.

In the R&D process it is important to conduct an appropriate project management to avoid waste of unnecessary resources (time, money, human resource, etc.)

My suggestions to consider in this phase are the following ones:

- Always to have present the technology's end user
- Have in mind and consider for the design all existent technology standards
- Identify technology trends to avoid that the technology will quickly become obsolete
- If apply, begin the process of intellectual property protection
- Look for low-cost development technologies

Business Development (Business Plan)

This stage is the one that I consider, in the particular, the most important in the commercialization process; it is here where we define the bases and pillars of the future business.

This stage is where the business plan is completely developed, and allows us to identify the market, competitors, financial resources needed, etc.

It can be the hardest challenge the founding team faces; but at the same time it is the phase that adds more value in experience and learning abilities that enable the founders to develop de business into a reality.

My suggestions to consider during this phase are:

- Participate in technology contests that enable the technology to prove itself
- Test the technology with potential end users (demos, beta)
- Identify the industry best practices
- Identify niche markets to initiate commercial operations
- Start the search for financial funding of the business

Sections 4 and 5 describe in detail the business aspects related with the development of a business plan.

Incubation

Having concluded developing the business plan and having verified the feasibility of the business model the business incubation process must be initiated.

It is here where the idea matures into a serious business venture and at that moment when the technology is now seen as a marketable product.

During the commercialization process, personal satisfactions of the founding team start to arrive, financing is achieved, cash flows are generated and personnel are contracted.

My suggestions for this phase are:

- Incorporate the business under the required legal regimen
- Secure the intellectual property rights
- Build a talented and complementary executive team
- Adequately manage your available resources

Business Consolidation

Few businesses reach this stage and even fewer are able to survive.

The business model is consolidated and proven in this stage. This leads to a business expansion, as it is now easy to replicate the conditions that lead to initial commercial success.

My suggestions for this crucial stage are:

- Secure financial funding
- Consolidate strategic alliances
- Move into new markets, with a clear entry and exit strategy
- Seek new market opportunities for the business
- Focus on strategic management

DIAGNOSIS, VALUATION AND POSITIONING OF TECHNOLOGICAL INNOVATION (Carlos Scheel)

As we have seen through this document, the technology commercialization process is a long and difficult process.

The Technological Innovation Valuation Method is a complete and easy tool to measure, the viability and feasibility of the technology, helping us in identifying weak points and even decide on starting the commercialization process or not.

To correctly use the Technological Innovation Valuation Method you need to understand the 4L's of Empowerment terms.

The 4 L's of Empowerment

The proposal of the technological innovation for the sustainable competitiveness under a systemic focus concentrates on generating a development cycle in which 4 elements take place:

- **LINKAGE** (connect, integrate)
- **LEVERAGE** (innovate, build, promote)
- **LEARNING** (learn, convert, transform)
- **LEADERSHIP** (coordinate, conduct)

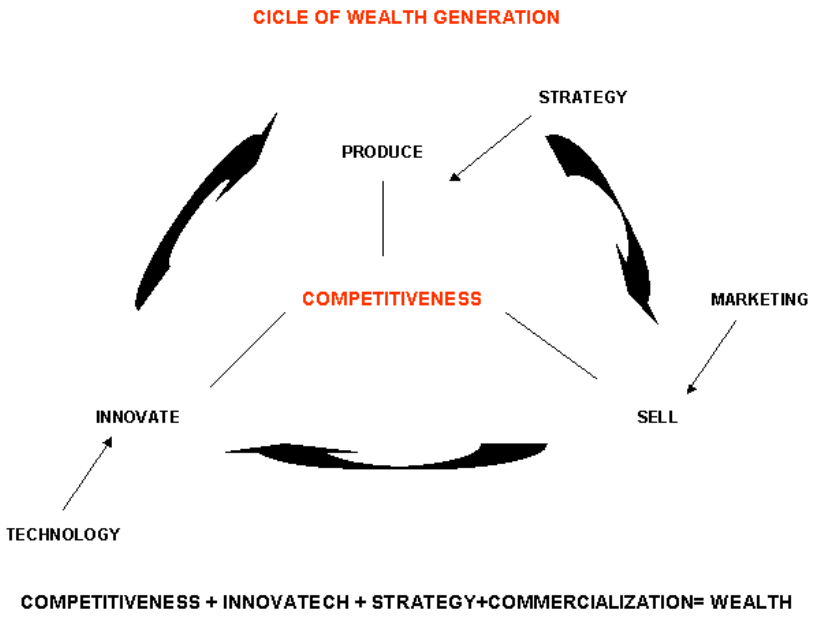


Exhibit 24 (Carlos Scheel)

Technological Innovation Valuation Method (Carlos Scheel)

Detail the following factors that are used to DESCRIBE -in a quick look- the strategic value of technological innovation that can be found in processes, products or strategic services and of great added value (those that apply):

- What does the technological innovation do?
- In which business unit, company or industrial sectors is included this technological innovation?
- What are the benefits of this technological innovation? To whom does it provide value? Direct or indirect? Are these strategic?
- Do the necessary conditions exist to develop this technological innovation? Where are they located?
- What external factors promote it?
- What are its inhibitors?
- Who owns the technological innovation? Who owns the rights and patents?
- What will be the cost of manufacturing the technological innovation?
- What are the most appropriate potential uses of this technological innovation?
- What could be the market share of this technological innovation, considering its competitors and substitute products?
- Does this technological innovation leverage the competitive position of a business unit? How?
- Does it have strong competitors? How are they? Where they are?
- How does the success of the technological innovation is measured (i.e. commercialization, leverage, position)?
- Which are the future trends of this innovation? Does it have breaking points? How can you anticipate them?
- How do you compare the characteristics & proprieties of this technological innovation with the best world practices?

Utility Measurement of Technological Innovation (Carlos Scheel)

The following survey determines the utility that a technological innovation can reach. Answer the following questions with 0,1,3,5,7,9: where (0) = DOES NOT APPLY, (1) = creates very low utility, … (9) generates a high value added or differential with great benefit to the business unit or company.

1. How much added value does it generate?
2. What is its differentiation? Is it unique?
3. Improves productivity? In which process or business unit?
4. Modifies the way people work?
5. The technological innovation improves the response time of the processes, or services? Does it turn them more effective?
6. Supports the systemic integration of the processes?
7. Simplifies what is complex?
8. Supports the customization of the product or service?
9. Improves the **linkage** of the company?
10. Brings radical changes to the company / product / or service?
11. Supports the organizational learning (**learning**)?
12. Provides a high economic value?
13. The technological innovation has patents or brands?
14. In general, does it produce a high strategic **leverage**?
15. The R&D of the technological development behind the technological innovation is well based and positioned?
16. The market has entry barriers?
17. The technological innovation has a high potential market?
18. The market of the technological innovation is mature, permanent and sustainable?
19. Are there many competitors & product substitutes in the market?
20. Does it provide or create a unique global positioning (**leadership**) to the company or business unit?

The next step is to make a radar diagram with these utility indicators and compare them as a percentage with the maximum value (9xn).

Radar Diagram

What Is It?

A radar diagram is a tool that provides a visual display of the current state or level of performance in various categories. A pattern is formed that often looks like a pattern on radar screens, hence the name.

In this type of graph you can visualize in combined form data that belong to different topics that can be measured in different units. For example, in one radius can be represented sales -in money -, in other radius, rate of personnel rotation -in percentage -, in other radius, the number of clients reclamation -in absolute value -, etc.

The radii of the circumference that appear in the graph represent each of the aspects to evaluate.

When Is It Used?

1. The status of elements in a project or process needs to be evaluated
2. Areas of improvement need to be displayed graphically
3. The change needs to be displayed over time

The radar diagram is very useful to detect in a "glance" the aspects that require more attention, because under ideal conditions, the resulting graph should show a good balance level among each of the evaluated aspects, at the same time, it should be as big as possible (the nearest to the circumference)

How Is It Made?

1. Draw a circumference and draw as many line radios as the number of aspects to evaluate.
2. Place the project/process in the center of the circle.
3. Write the name of each category at the end of the line.
4. Scale the lines.
5. Evaluate each category in terms of current performance.
6. Place a dot on the line that represents the evaluation.
7. Connect the dots a study the results.

Next is presented an example, related to our case of study, the 3DTV System.

Three Dimension Television System

Utility Measurement of Technological Innovation

Questions	Value
Does the innovation will generate utility?	7
How much added value does it generate?	7
What is its differentiation (leverage)?	8
Does it produce a high strategic leverage?	8
The R&D of the technological development behind the technological innovation is well based and positioned?	8
Improves productivity?	0
Modify the way people work?	7
Improves the response time of the processes, or services?	0
Supports the systemic integration of the processes?	0
The technological innovation has potential market?	8
Simplifies what is complex?	5
Brings radical changes to the company / product / or service?	7
Support the customization of the product or service?	8
Improve the linkage of the company?	8
The innovation has patents or brands?	9
Supports the organizational learning?	7
Provides a high economic value?	8
Does it provide or create a unique global positioning (leadership) to the company or business unit?	9

Radar Diagram

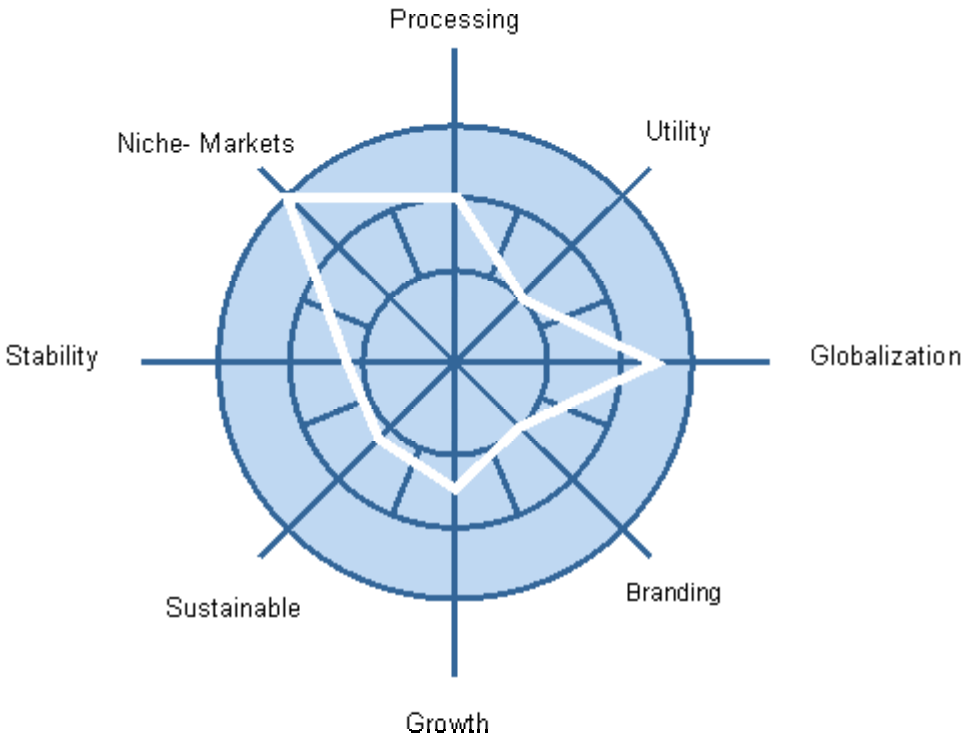


Exhibit 25

Chapter 5

PARTICULAR MODEL

The following figure shows the relationship identified in this research; we found the elements that must be covered by a business plan in order to satisfy the needs of entrepreneurs and venture capitalists.

Particular Model

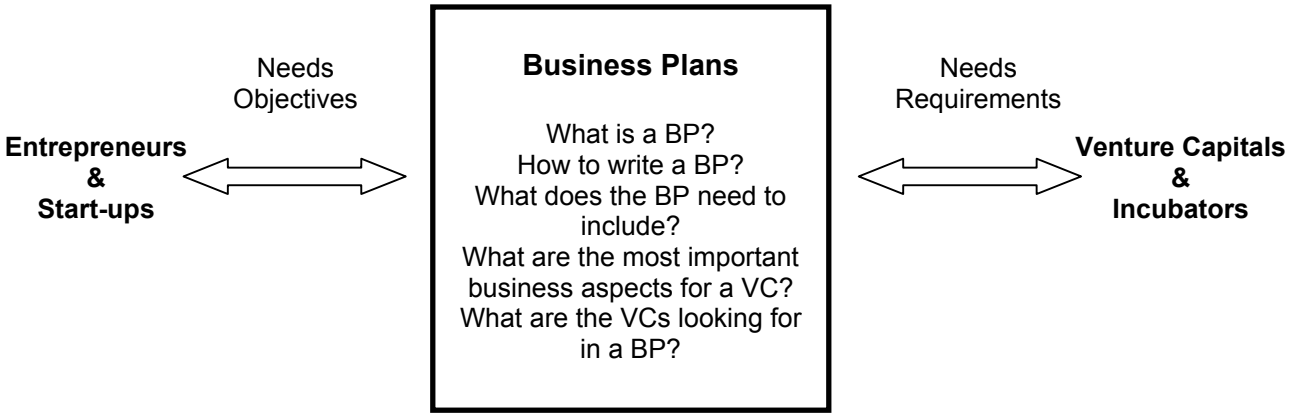


Exhibit 26

The elements to consider within this investigation are the business areas that business plans must include to satisfy venture capitalists requirements and get funding for the business.

The contribution of this model is to take the indispensable business aspects that a business plan must have from other models and include the most important aspects that at the moment are not contemplated and are vital for technological-based projects.

The next figure presents the business aspects that are considered in the particular model.

Business Aspect of the Particular Model

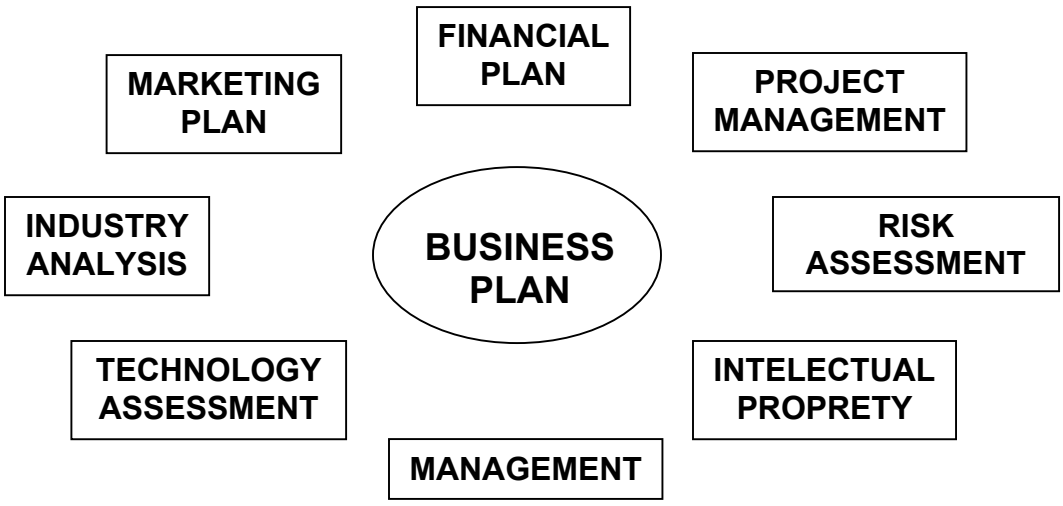


Exhibit 27

This particular model arises from the overhaul of literature that at the moment exists for the creation and development of business plans.

We identify that the existing models do not make a distinction on projects for different business industries. In other words, the steps to follow in the development of a business plan for a drugstore or a shoe store are the same than those required to introduce a high-tech product in the market. Because of that we include in the particular model for example two important technologies areas as intellectual property and project management.

"For years, intellectual property has been a hidden asset whose value is only now being recognized and tapped." [12]

"Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet project requirements." [13]

The particular model has a final outline that covers all the business aspects mentioned in exhibit 6. It's important to note that the particular model will not provide a magic formula to be followed to get funding on the venture. The final outline will help the entrepreneur as a guide to develop a business plan that includes what a venture capital firm wants to read.

The purpose of the particular model is to provide a set of guidelines on how to write a technology-based project business plan, to highlight what a prospective venture capital is -and is not- looking for in such a plan and to provide a summary checklist of the attributes of a good business plan.

SECTION 4

“Theory”

CHAPTER 6

BASIC COMPONENTS IN A BUSINESS PLAN

Confidentiality Agreement Document

Some venture capitalist or investors refuse to sign confidentiality agreements--but they will maintain confidentiality as part of maintaining their reputations some other doesn't care about it. As the business plan will contain important information about the business concept, financial features, current state of the business, description of technology, intellectual property aspects and other confidential information, is important to include a confidentiality agreement document to protect the information.

A confidentiality or non-disclosure agreement is crucial for an entrepreneur, inventor or any other party who needs to protect confidential information. A confidentiality agreement is a legal agreement to protect confidential business information revealed during discussions or negotiations with companies and individuals.

As the importance of the confidential information increases, so does the relative complexity of the agreement. Next are the most important elements of a confidential disclosure agreement: [20]

Definition of Confidential Information: The most important part of the confidentiality agreement is the definition of confidential information. Ideally, the contract should set forth as specifically as possible the scope of information covered by the agreement. The disclosing party may be reluctant to describe the information in the contract, for fear that some of the confidential information might be revealed in the contract itself.

Explanation of Purpose for Disclosure: Confidential information is only revealed to another party for a specific purpose. The agreement should set forth what the purpose is.

Disclosure: Many confidentiality agreements do not have a disclosure provision. This provision states that in return for agreeing to keep the information confidential, the Recipient has the right to receive the information. Since this puts a duty on the Discloser to disclose its confidential information, the Discloser should carefully consider the scope of any such provision.

No Disclosure: The Recipient must agree not to disclose the information to third parties. The extent of this provision to a large extent controls the "strength" of the non-disclosure agreement. Typical disclosure provision issues that may be faced in drafting and negotiating a confidentiality agreement include:

- Whether or not to include a "best efforts" clause,
- Whether to limit access of Recipient employees to a "need to know" basis, and
- Whether Recipient should merely agree to protect the confidential information in a manner similar to the way the Recipient protects its own confidential information.

No Use: Some non-disclosure agreements forget this important element. The Discloser wants to make sure the Recipient does not use the information for any purpose other than that set forth in the agreement.

Limits on Information Deemed Confidential: Practically every non-disclosure or confidentiality agreement puts some limits on the type of information that will be deemed confidential. For instance, if the Recipient already knew the information before it was revealed by the Discloser, or if the information was revealed to the Recipient by a third party, that information will not be treated as confidential under the agreement. Other possible limits include information that becomes publicly known, information that is requested by order of a government agency, or information that is independently developed. The Discloser may require a certain level of proof before such information is considered non-confidential.

Term: The term provision of a confidentiality agreement can be extremely important. The term must be long enough to protect the interests of the Disclosing party. Nonetheless, the term should not unduly burden the Recipient. Example term provisions would have the agreement last one or five years. Alternatively, the agreement could last indefinitely, as is shown in the example contract.

Other Provisions: Other provisions that are commonly found in confidentiality agreements include:

- A provision allowing the remainder of an agreement to stay in effect even if a portion of the agreement is found to be unenforceable,
- A provision stating that the agreement is binding on heirs and assigns,
- A provision calling for a return of confidential materials after use by Recipient,
- A provision stating that the Discloser has the right to receive an injunction from a court if the agreement is breached,
- A provision specifically specifying that the Discloser owns all confidential information,
- A provision specifying that disputes should be arbitrated, and
- A provision governing the controlling law for the contract.

At appendix A there's a sample of a confidential disclosure agreement. The sample document in the appendix will not be suitable for any particular business deal without review and modification to reflect all the facts and circumstances affecting that particular deal, including the effect of local laws and regulations and recent developments in the law.

The information of the confidential disclosure agreement will necessarily vary depending upon the circumstances. The sample offered is for purposes of illustration only. The sample should never be used without review by the investment advisor and legal counsel representing the company or individuals involved in the new venture.

Executive Summary

Without a doubt, the single most important portion of a business plan is the Executive Summary.

The executive summary is what most readers will go to first. If it is not good, it may be the last thing they read about your company. Lenders in particular read executive summaries before looking at the rest of a plan to determine whether or not they want to learn more about a business. Other readers will also go first to the executive summary to get a snapshot of the business and to gauge the entrepreneur professionalism and the viability of the business.

It is the executive summary that first convinces the venture capitals that the entrepreneur has a well conceived and potentially successful business strategy.

All the authors and specialist recommend preparing the executive summary last. Although it appears first in the complete business plan, the executive summary reflects the result of all the planning and should be crafted only after careful consideration of all other aspects of the business.

"The executive summary is the most critical piece of any business plan. Investors will turn immediately to this section in order to get their first impression of the venture." [21]

"The entrepreneur needs to prepare a clear, concise and compelling condensation of the business right up front, no one will spent time wading through the rest of the plan if the executive summary do not persuade a reader to spent the time to find out about the product or service, market and techniques." [10]
If the entrepreneur want to sent out only a "concept paper" to gauge investor interest before submitting the complete business plan, the executive summary should serve as that document,

also some investors prefer to receive just a summary and financials before reviewing and entire plan.

What to Convey in the Executive Summary?

Below are presented a recompilation of what the venture capitalist want to read in the executive summary and what do the specialist recommend.

Ann Winblad a Venture Capitalist mention “A good Executive Summary gives me a sense of why this is an interesting venture. I look for a very clear statement of their long-term mission, an overview of the people, the technology and the fit to market. Answer these questions: What is it? Who’s going to built it? Why will anyone buy it? To paraphrase the movie Field of Dreams, we want to know, ‘If we fund it, will they (buyers) come?” [10]

Eugene Kleiner, venture capitalist recommends, “An Executive Summary should be short; two page at most, one page if possible. Spell out the company’s objectives, what you plan to do. Do not attempt to describe details. Describe the need for the product and exactly what it is. Tell qualifications of the principals as they relate to the business” [10]

Next are presented what do the specialists recommend to include in the executive summary.

The executive summary must clearly but briefly explain: [14]

- The company’s status and its management
- The company’s products or service and the benefits they provide to users
- The market and competition for the product
- A summary of the company’s financial prospects
- The amount of money needed, and how will be used

“The executive summary gives the reader a change to understand the basic concept and highlights of the business quickly, and to decide whether to commit more time to reading the entire plan. Therefore, the goal of the executive summary is to motivate and entice the reader.” [10]

The executive summary must include and let the reader know that: [10]

- The basic business concept makes sense.
- The business itself has been thoroughly planned.
- The management is capable.
- A clear-cut market exits.
- The business incorporates significant competitive advantages.
- The financial projections are realistic.
- Investors and venture capital firms have an excellent change to get their money back.

The executive summary needs to describe: [5]

- The market at which are aiming
- The specific benefits offered by the product or service
- The unique features or factors that enhance the chances of success
- The competence of the management team
- The stage that the business idea has reached
- The financial requirements, the specific purposes to which the finance will be put and the dates at which it will be needed
- The potential risk and return

Robert Mahoney, Executive Director of New England Corporate Banking (Bank of Boston) mention " In a business plan, I want to know the answer to these question: What are they going to sell, to whom and how? In other words, what is the marketing aspect of the business? What sales force, advertising, and other marketing techniques are they going to use? And secondly, what are the costs? I want to know manufacturing or sourcing costs. How reliable and stable are these costs? At what cost will they sell their products or services? I want to see believable cost and believable pricing." [10]

In conclusion, the executive summary should focus in the business concept, financial features, financial requirements, current state of the business, when it was formed, principal owners and key personnel, and major achievements. The executive summary must include:

- Description of the business concept
- The opportunity
- The market and projections
- The competitive advantages
- The economics, profitability and harvest potential
- The team
- The offer to the investor or VC firm.

Table of Contents

The table of contents provides readers with a quick and easy way to find particular sections of the business plan. All pages of the business plan should be numbered and the table of contents should include page numbers. Be sure to list headings for major sections as well as for important subsections.

The table of contents permits faster reading and clearer comprehension as well as selective reading with considerable timesaving.

The table of content forces the entrepreneur to consciously design a logical structure, or sequence of concepts to be presented. The table of contents needs to be clear and easy to read.

A well-prepared table of contents should list the major concepts of the business plan, arrange in a logical sequence and displayed on two or more levels. These levels refer to sections and subsections used to structured and format the content of the business plan. Each section and subsection titles should begin with a title heading and a short descriptive sentence.

If the executive summary and the table of contents are clearly and concisely written, the text of the report may be read hurriedly. Often, these introductory materials will convey an immediate understanding of the situation and convince others to act.

Company Overview

If the business plan is written to seek funding for a new venture is not necessary to include this section.

This section is important for the established companies because notify the reader (investor or venture capitalist) about the basic details of the company before you can discuss more complex aspects in other sections of the business plan. The company overview must be able to present a clear portrait of what the company does. The company overview is the corporate vision, and includes: who you are, what you will offer, what market needs you will address, and why your business idea is viable. A concise, easy-to-understand description of the company will help the business plan.

In company overview it's important to include the history information of the company.

- Date and place, including state of incorporation of the company.
- Describe the legal form of business.
- Founding shareholders and directors.
- Company's major successes or achievements in the field to date.

In the company overview is also important to include:

- Mission statement: Provide the nature and focus of the business and guide the principle of the business.
- Company's objectives: The business philosophy, the financial goals and expect of the company.
- Management: include the name of the board of directors, advisory board, or other governing entity (there's special section to describe the function, background, etc.)
- Business location.
- Development stage of the company.
- Financial status.
- Patents and licenses: indicate the trademarks, patents, licenses, or copyrights that the company has secured or has pending.

CHAPTER 7

INTELLECTUAL PROPERTY

"We live in extraordinary times, politically, economically and socially. Since the cold war has ended the world is becoming smaller, and the reason for geopolitical conflicts between East and West are disappearing. The role of the intellectual property in the global marketplace is also changing as part of this process, and the advances affecting intellectually property are just extraordinary. During the past decade, intellectual property has been recognized as the dominant factor in numerous, significant commercial transactions." [12]

In these times of change and openness, the ideas that originate and perfect the technological and industrial processes are a key asset, perhaps more valuable than the infrastructure or the financial capital of a company. The registry and the licensing of those ideas are tasks that have become more and more urgent in the competed global world.

From a macroeconomic point of view, the technology is of extreme importance for the development of countries, but from a smaller scale we can say than by means of technology companies can:

- Increment the added value of products or services
- Keep the competitiveness of products or services
- Reduce production costs
- Improve the benefits of the services and the quality level of products.

Technology can be obtained from three ways: by own development, by purchase, or by the acquisition of third via licensing.

Technology is possibly the productive factor that, in addition to capital, transfers with greater facility the borders between countries. For that reason it is not possible to speak of technology without treating it in a worldwide scale. Technology can flow through:

- Licensing agreements (brand use concession, patents, designs, know-how, etc.)
- Direct investments.
- Co-investment.
- Export of technology incorporated in products.
- International projects of research and development.

"In the modern economy, intellectual property is fast emerging as a new source of wealth and power. The foundations of the economy have shifted away from the traditional industries of cars, steel, and textiles to high technology, information-based industries. The success of these industries is based on knowledge and innovation, rather than manufacturing might.

Various forces are responsible for this shift. One factor is the rapid rate of technological developments, notably in the areas of semiconductor chips, computer software, and biotechnology. New products are entering the market at breathtaking speed –cellular telephones, smart cards, laptops computers, etc.- New technologies are being developed that revolutionize both the workplace and the home.

A second force propelling the modern information-based economy is the "globalization" of the world economy. Enhanced communications technologies have played a major role in this restructuring. The world economy has become more closely integrated as technological leaps in computerization and data-transfer telecommunications have made it possible for companies to coordinate the activities of their distant plants, divisions, and subsidiaries and to link those activities with buyers and suppliers.

Another force underlying the modern economy is the emergence of new global mass culture, driven by communications technologies.

Ironically, the emergency of new technologies has permitted unauthorized copying and counterfeiting on much larger scale than ever before, undermining the value of the creator's work. The United States has reported losses exceeding $60 billions per year from these activities.

As a result of these forces, intellectual property rights are increasingly being recognized as valuable assets to be protected and exploited. This trend is apparent on corporate, national, and international levels. Today economic security has been equated with national security, and intellectual property is considered a form of national wealth. Thus, protecting intellectual property is not just important to private persons, whether individuals or companies, but also to national governments, whose global influence may well be determined by the level of international intellectual property protection their citizenry receive. Control of information technology, and intellectual property rights therein, translates into economic power and wealth that is recognized and can be exploited on an international scale in the new world economy. In this sense, intellectual property is becoming a new global currency." [12]

Intellectual property refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.

Intellectual property is divided into two categories: [22]

> Industrial Property, which includes inventions (patents), trademarks, industrial designs, and geographic indications of source
>
> Copyright and Related Rights, which includes literary and artistic works such as novels, poems and plays, films, musical works, artistic works such as drawings, paintings, photographs and sculptures, and architectural designs. Rights related to copyright include those of performing artists in their performances, producers of phonograms in their recordings, and those of broadcasters in their radio and television programs.

Industrial Property

Inventions (patents)

What is a patent?

A patent is an exclusive right granted for an invention, which is a product or a process that provides a new way of doing something, or offers a new technical solution to a problem.

What does a patent do?

A patent provides protection for the invention to the owner of the patent. The protection is granted for a limited period, generally 20 years.

Trademarks

What is a trademark?

A trademark is a distinctive sign, which identifies certain goods or services as those produced or provided by a specific person or enterprise. Its origin dates back to ancient times, when craftsmen reproduced their signatures, or "marks" on their artistic or utilitarian products. Over the years these marks evolved into today's system of trademark registration and protection. The system helps

consumers identify and purchase a product or service because its nature and quality, indicated by its unique trademark, meets their needs.

Industrial Designs

What is an industrial design?

An industrial design is the ornamental or aesthetic aspect of an article. The design may consist of three-dimensional features, such as the shape or surface of an article, or of two-dimensional features, such as patterns, lines or color. Industrial designs are applied to a wide variety of products of industry and handicraft: from technical and medical instruments to watches, jewelry, and other luxury items; from house wares and electrical appliances to vehicles and architectural structures; from textile designs to leisure goods.
To be protected under most national laws, an industrial design must appeal to the eye. This means that an industrial design is primarily of an aesthetic nature, and does not protect any technical features of the article to which it is applied.

Geographical Indications

What is a geographical indication?

A geographical indication is a sign used on goods that have a specific geographical origin and possess qualities or a reputation that are due to that place of origin. Most commonly, a geographical indication consists of the name of the place of origin of the goods. Agricultural products typically have qualities that derive from their place of production and are influenced by specific local factors, such as climate and soil. Whether a sign functions as a geographical indication is a matter of national law and consumer perception. Geographical indications may be used for a wide variety of agricultural products.

Copyright and Related Rights

What is copyright?

When a person creates a literary, musical, scientific or artistic work, he or she is the owner of that work and is free to decide on its use. That person (called the "creator" or the "author" or "owner of rights") can control the destiny of the work. Since, law protects the work by copyright from the moment it comes into being, there is no formality to be complied with, such as registration or deposit, as a condition of that protection. Mere ideas in themselves are not protected, only the way in which they are expressed.

Copyright is the legal protection extended to the owner of the rights in an original work that he has created. It comprises two main sets of rights: the economic rights and the moral rights.

The economic rights are the rights of reproduction, broadcasting, public performance, adaptation, translation, public recitation, public display, distribution, and so on. The moral rights include the author's right to object to any distortion, mutilation or other modification of his work that might be prejudicial to his honor or reputation.

Both sets of rights belong to the creator who can exercise them. The exercise of rights means that he can use the work himself, can give permission to someone else to use the work or can prohibit someone else from using the work. The

general principle is that copyright protected works cannot be used without the authorization of the owner of rights. Limited exceptions to this rule, however, are contained in national copyright laws. In principle, the term of protection is the creator's lifetime and a minimum of 50 years after his death.

How has copyright kept up with advances in technology?

The field of copyright and related rights has expanded enormously with the technological progress of the last several decades, which has brought new ways of spreading creations by such forms of worldwide communication as satellite broadcast and compact discs. Dissemination of works via the Internet is but the latest development, which raises new questions concerning copyright.

How is copyright regulated?

Copyright itself does not depend on official procedures. A created work is considered protected by copyright as soon as it exists. However, many countries have a national copyright office and some laws allow for. Many owners of creative works do not have the means to pursue the legal and administrative enforcement of copyright, especially given the increasingly worldwide use of literary, musical and performance rights. As a result, the establishment of collective management organizations or societies is a growing trend in many countries. These societies can provide members the benefits of the organization's administrative and legal expertise in.

At appendix B are show the most typical intellectual property mechanisms.

When the stock market values companies at three, four, or ten times the book value of their assets, it's telling simple but profound truth: the hard assets of a knowledge company contribute far less to the value of its ultimate product (or service) than the intangible assets -the talents of its people, the efficacy of its management systems, the character of it's relationships to its customers –that together are intellectual capital. [23]

"Problems in valuing, measuring and collateralizing intellectual property may exist, but intellectual property's newly realized commercial value would inevitably overcome such problems. There is simply too much money at stake to permit continued ambiguity in the use of intellectual property in commercial deals." [12]

How intellectual property can be measured, accounted for and value?

"For a business, intellectual property represents the difference between being a commodity company chasing slim profit margins and a fast growth company that almost mints money." [12]

The ways in which intellectual property contributes to corporate value are presented next.

Active Intellectual Property (AIP)

Active intellectual properties are categorized as those that are directly responsible for generating sustained amounts of above-average profits. AIP work to control costs of production or introduce product characteristics that command premium-selling prices. Sometimes intellectual property contributes by commanding a premium-selling price on a consistent basis, regardless of competitor actions. Well-recognized trademarks are good examples.

Passive Intellectual Property (PIP)

Enhanced profitability can also be derived from PIP, whereby profits are not directly enhanced by premium selling price or cost saving. These intellectual properties can be just as valuable, but their contribution to earnings enhancement is subtler. Even when active contributions to earnings are not present, intellectual property can provide a company with above-average profits. When an organization can rely on large and consistent production volumes, operating efficiencies are possible, which generally lead to enhanced profits.

Emergence of Intellectual Property Exploitation Strategies

Strategic alliances are dominating the corporate landscape as the primary strategy for crating corporate value. At the core of these strategies are intellectual property –especially technology and trademarks. Licensing deals and joint ventures are becoming the dominant strategies for optimization of intellectual property exploitation.

Intellectual properties, such as patented technology and world-class trademarks, are at the very core of corporate achievement. These intellectual properties capture huge market shares, command premium prices, and hold customer loyalty. They are also in scarce supply and expensive to create. Companies that possess such assets can grow and prosper. Those without access to intellectual property will stagnate for a while low profit commodity businesses and eventually fade out of existence.

D. Bruce Merrifield, professor of entrepreneurial management, the Wharton School of University of Pennsylvania, explained that wealth is no longer derived from possessing physical resources: Wealth will be measured, increasingly, in terms of ownership of (or time-critical access to) knowledge-intensive high value-added, technology-intensive systems.

Product life cycles are shortening, new products are introduced more frequently, and less time is available between product introductions, so time has become one of the primary forces driving the trend toward strategic alliances. Time is also a major force that drives intellectual property value, royalty rates, and joint venture equity splits.

Factors That Drive Strategic Alliances: Time, Cost, Risk

Companies typically seek to expand product lines, increase market share, minimize new product development cost, expand market opportunities internationally, and reduce business risk. They seek to create corporate value for investors.

Intellectual property, however, is even more important. Without intellectual property profits are low, growth is lacking, and corporate value is lost. Corporate managers realize today more than ever that access to intellectual property is key to their ability to create corporate value and, more important, essential to continued corporate survival. The forces driving the licensing and joint venturing of intellectual property include timesavings, cost controls, and risk reduction.

How intellectual property value can be quantified?

Cost Approach

The cost approach seeks to measure the future benefits of ownership by quantifying the amount of money that would be required to replace the future service capability of the subject intellectual property. The assumption underlying this approach is that the cost to purchase or develop new property is commensurate with the economic value of the service that property can provide during its life. The cost approach does not directly consider the amount of economic benefits that can be achieved nor the time period over which they might continue. It is an inherent assumption with

this approach that economic benefits indeed exist and are of sufficient amount and duration to justify the developmental expenditures.

The preceding equation describe the full course of the cost approach in determining fair market value:

Cost of Reproduction New (CRN)

or

Cost of Replacement (COR)

Less: Physical Depreciation

Less: Functional Obsolescence

Equals: Replacement Cost less Depreciation (CORLD)

Less: Economic Obsolescence

Equals: Fair Market Value

CRN: current cost to obtain an unused replica of the subject property.
COR: the cost of obtaining a property of equivalent utility.

When there is a difference between these two amounts, it is usually because COR represents a less costly substitute, one element of functional obsolescence.

Physical Depreciation: The reduction in value from wear and tear on assets derived from normal use.
Functional Obsolescence: The reduction in value caused by changing conditions that make assets less useful.
Economic Obsolescence: The reduction in value caused by changing economic conditions that render previously useful assets less desirable to own.

The cost approach is especially useful for appraising highly specialized property and also as a valuation method for certain intangible assets.

The starting point in using the cost approach is to obtain an estimate of the cost to produce a new replica of the intellectual property.

A failure of the cost approach is that there is an absence of direct consideration of the economic benefits, and the period over which they might be enjoyed is not accurately captured in the value.

The cost approach is not as comprehensive as the other two valuation models.

Market Approach

The market approach provides an indication of value by comparing the price at which similar property has been exchanged between willing buyers and sellers. When the market approach is used, an indication of the value of a specific item of intellectual property can be gained from looking at the price paid for comparable property.

Requirements for successful use of this approach include the following:

1. Existence of an active market
2. Past transactions of comparable property
3. Access to pricing information
4. Arm’s-length transactions between independent parties

Transactions of specific items of intellectual property are not common. When such transactions actually occur, the terms of the exchange are not often disclosed to the public. The most difficult aspect of the marketing approach as it applies to intellectual property is comparability. Even if pricing information for a specific exchange regarding a specific patent were available, the price at which the property exchanged most likely will have no bearing on the value of other patents unless positive comparability exits.

Valuation is not easy for intellectual properties such as patents and trade names. Many factors come into play. The following are some of the important factors that should be considered in seeking intellectual property comparability:

Industry characteristics
Profit history
Market share potential
New technologies
Barriers to entry
Growth prospects

The following equations define the typical enterprise of which intellectual property is a part:

Business Enterprise Value	= Invested Capital
Invested Capital	= Long-Term Debt
	+ Shareholders' Equity
Long-Term Debt + Shareholders' Equity	= Net Working Capital
	+ Tangible Assets
	+ Intangible Assets
	+ Intellectual property

The business enterprise is defined as invested capital, which equals the value of shareholders' equity and long-term debt. This amount represents the amount originally provided to start the company. Therefore, the market value of the business enterprise equals the value of the assets that constitute the business. Based on this, the value of a specific asset can be determined if the overall value of the business enterprise is known.

Comparability is needed for the market approach to be useful. It is also the most difficult element of the market approach to establish intellectual property. The inherent uniqueness of many types of intellectual property, such as key patents and first-class brand names, make satisfactory application of this approach difficult, but not impossible.

Income Approach

The value of any asset can be expressed as the present value of the future stream of economic benefits that can be derived from its ownership. The income approach can yield very credible valuation conclusions for many types of intellectual property and, at least until more market transactions are disclosed, is probably the most accurate means of valuing intellectual property.

Answering the following questions can summarize a number of factors, fundamental to success in using an income approach:

- What amount of economic benefit can be expected?
- How long can it be expected to continue?
- Will the amount of benefits be increasing or decreasing?

- What risk is involved with achieving the anticipated benefits?
- Can specific economic benefits be attributed to specific intellectual property?

The future stream of economic benefits is best measured by the amount of net cash flow to be derived from employment of a property. This measure should take into account the cost of doing business as well as additional capital investment that will be needed to sustain the cash flow. After accounting for these future uses of gross cash flow, the net amount represents the economic benefits derived from ownership of the property.

The amount of future net cash flow is not determined solely by management actions. Other factors can enhance or diminish the sustainable level of these benefits. The amount of cash flow that will be available on a sustained basis is affected by economy climate, profitability, competition and capital requirements.

Clearly, the net cash flow stream is affected by many factors. An additional and significant concern is the duration over which these net cash flows will be enjoyed.

Technological breakthroughs can abruptly interrupt a stream of economic benefit. Governmental regulations can also cause standard business practices to become obsolete. Value is therefore very sensitive to the remaining period of time over which cash flows will be received. The duration over which net cash flow is to be received is just important as the amount.

The economic life of intellectual property may be short because of advancing technologies, industry practices involving regular model changes, changes in social attitudes toward a product or service, and other factors. The economic benefits associated with a specific intellectual property need not be immediate for the property to have value. Many years of development and research may be required before net cash begins to flow, but the property can still have a huge value because of its potential. The value, however, is still dependent on the amount, growth rate, and timing of the economic benefits.

Typically, net cash flows are estimated by comprehensive analysis of the market for the product that can be derived from the intellectual property. It is much easier to make forecast of net cash flows for technology that has proven to be commercially viable. The value of emerging technology is directly related to the present value of the future economic benefits that will ultimately be enjoyed. Forecasting net cash flows for uncertain technology is precarious. The degree of certainty with which the forecasts are viewed has much to do with the discount rate that is used in the present value calculations.

CHAPTER 8

TECHNOLOGY ASSESSMENT

Technology assessments are used early in the commercialization process and help determine the commercialization potential for a specified technology.

The technology assessment process is crucial because it helps to identify potential commercialization partners, the focus for additional R&D, and the stimulation of advocate support for the next stage of commercialization. The advocacy of support is critical to moving the technology forward to subsequent stages of commercialization.

Other types of assessments include determining the suitability of a technology for internal use, or determining the impact of a technology on the environment. We are looking at both the push--from technology to market, and the pull--a known market need-- to determine whether there are important discoveries of innovation in the process of developing alternative technologies.

The Technology Assessment Roadmap is a tool used for early stage technology assessment. It is used both for Quicklook and In-Depth market research reports.

Quicklooks are used in the very early stage, and have many of the same section headings as those for In-Depth assessments. Quicklook assessments are early indicators of potential opportunities and barriers to entry. Information gathered in Quicklooks only scratches the surface and gives indications of what lies beneath.

The In-Depth assessment explores the issues more thoroughly and gives a detailed picture for each section of the report.

Both the Quicklook and the In-Depth are designed to determine the commercialization value of a technology.

The idea is to invest the amount of money in the technology that is commensurate with its stage of development. Expensive market studies are not necessary for all technologies in the early stages of commercialization. Spending too much time can cause a loss of ground.

Both assessment tools are used to lower risk and increase comfort in making a recommendation. More time and money are invested in an In-Depth assessment, but only for those technologies that are already determined to be promising.

For both the Quicklook Assessment and the In-Depth Assessment is necessary and indispensable to do research, next are describe in which consist the primary market research and secondary and in the Marketing Plan section we discuss it in detail.

Primary Market Research

Primary research creates data through interviews and other direct feedback mechanisms. Primary research addresses specific technology and information needs because it asks technology-specific questions of potential customers and industry experts. Generally, this type of information identifies opportunities that competitors are not aware of.

This type of research relies on the skill of the interviewer as well as the design of the questionnaire. Interviewing techniques and initiative have a direct influence on the quality of the information gathered. Real-time feedback is delivered to the researcher, providing information that is timely and concurrent with the technology.

Primary research is either internal or external. It is easier to get a better understanding of the technology and how it fits into the organization as a whole by using experts within an organization. Interviewing the inventor of the technology provides a starting point for identifying

potential downstream uses, because the technology's inventor best understands its capabilities and limitations. Other technical experts can help identify manufacturing methods and price ranges, as well as potentially competitive products. Sales staff and others who have direct contact with customers and users can help by identifying which people should be interviewed, what benefits are important to the market, and what are the market drivers. Beta testing also gathers direct feedback and can be especially valuable in debugging.

Internal Primary Research

There are many benefits to internal primary research. Internal experts have a keen understanding of the technology and its potential for the company. Internal research is fast and inexpensive, and the researcher gains an understanding of how the technology fits into the internal goals and product mix of the organization. Internal research gives the researcher insights into the underlying assumptions of the technology development. This is critical because underlying assumptions are not always correct. Identifying potential points of contention will help guide research.

Internal primary research also has its drawbacks. Internal views can be myopic and see the technology only for what it is rather than what it can be. Because perception is each person's reality, the internal perception framework can only be altered by strong evidence. Dissonant research findings will often be challenged or discounted.

External Primary Research

External primary research can be business-to-business or business to consumer. But even with consumer goods, it is wise to contact and understand the distributors and others in the supply chain when doing market research.

External primary sources are often the most important because they give real-time feedback from the marketplace. Potential customers and partners can be asked questions in phone surveys, mail surveys, and e-mail surveys. While these are the most common forms of external research, they are also the least flexible. The design of the survey becomes paramount. Free-flowing forums, such as focus groups, involve customers in mutual sharing of information. In-depth interviews also have an interactive component that adds the benefit of being able to tailor the information as the research is developed. This is especially important when the technology or the market is new.

External primary market research offers many benefits similar to internal market research. It's tailored to company needs, it offers a real-time feedback benefit, and it answers specific questions about products and services. Most importantly, it gives a reality check to technology developers, because it's customer-driven. However, it has its drawbacks. It focuses on the external market, drivers, competitors, barriers, and opportunities.

External primary research can be expensive, and compiling the research can be time-consuming, thus diluting the full benefit of being real-time. It also can result in publicizing the strategy or product direction, exposing this information to competitors and others.

Interviewing Techniques

In some high-tech industries, identifying and interviewing the right people may be very difficult. Newsgroups can be located through a newsgroup search sites. Using newsgroups to research information technologies is best done when it's difficult to assess new and emerging technology needs in other ways. Once an appropriate newsgroup is found, specific questions can be asked. For example, ask specific questions about the proposed benefits of a technology; ask about other products on the market that might offer the same benefits as the new technology; or ask for advice about companies or industry experts you can contact. You can ask targeted e-mail questions that will direct you to potential competitors, benefits, or links. These unsolicited

requests can open avenues to primary sources; thus, it is critical to be careful in targeting or personalizing a request.

The quality of primary research results depends on the skills of the interviewer and the questionnaire designer. There are a number of techniques that are effective in getting responses, usually in the form of enticements. Often, responders will be inspired to give feedback when they are promised a pre-market use of the technology, or some special discounts or terms to obtain the product when it is produced. The interviewer should emphasize the benefits of the product so that specific needs of the interviewee are being met.

Secondary Market Research

Secondary market research can be a critical component of a market study. It is a good way to get macro-statistical information that already exists about an industry. This comprehensive data can be further analyzed and provides valuable industry quantitative information that is useful in assessing market position. Information gathered tends to be general rather than specific; thus it can be used in global decisions and strategic planning. Industry information can also be used for historical or trending information.

Secondary research allows the researcher to avoid reinventing the wheel when appropriate information can be found elsewhere.

In-House Sources of Information

In-house sources of information can yield important data. Internal research reports contain data that has already been collected and analyzed, as well as conclusions that have been reached.

Sources of in-house information include purchased reports and subscription data, a shortcut to identifying sources, experts, and companies of interest. Customer lists and contacts often yield opportunities for interviewing. Data on competitor range from brochures to annual reports, which give insight into the competitive landscape and future expectations. Association memberships contain compiled data that is often unavailable from any other source, and can help identify specific companies to seek out.

There are many important benefits from using internal secondary research. It is fast and inexpensive and can also help identify internal sources that contain up-to-date information. For example, it can lead to internal experts. Because the information is tailored to the company or its product line, time is saved in assessing threats and opportunities. However, there are drawbacks to internal secondary research. Data may be out of date or unreliable. Past records may not indicate future direction and may actually create a pitfall of expectations. Biases of the past may be deadly to the future health of the organization.

The Internet allows easy access to sources of external information through secondary private sources. This easy access has greatly increased supply and driven down costs. There are companies that sell specific information, which can be expensive, but if the fit is good, the information can be invaluable. Compiled company data is available because there are many potential customers for that information.

Too many companies gather and sell information. Trade groups also compile information about their members and make it available, usually at a price. Competitors' Web sites reveal a great deal about their products and plans. University libraries and other public sources also can be mined for sources of data about competitors and competing technologies.

Using the Web for Market Research

The sheer amount of information available on the web makes it difficult to search for data efficiently.

Web search engines have a variety of features and capabilities, and can reveal compiled web resource lists from universities, individuals, and organizations. Rather than looking for specific information, try looking for compiled lists of web links that address the industry or technology you're seeking. Privately compiled web links are usually more industry specific than general business. Excellent sources of web links can be found at industry association sites.

External private research can uncover specific information and reports that directly address the industry of interest. These secondary sources are inexpensive and are an excellent way to accumulate extensive qualitative data gathered in primary research.

This secondary information can give a macro view of the market and an insight into competitors' markets and financial positions. Specific questions can be answered, such as market share, demographics, and the buying habits of specific groups of customers. News reports, trade journal articles, and other privately published information can give early indications of new developments in technologies and in the marketplace.

Data drawn from external secondary sources can also have drawbacks. The data needs to be analyzed and reviewed, which can be very time-consuming. Data is quickly out of date and while it may not be useless, could require updating and close scrutiny to determine its relevance. Data can be overly broad and of little use in addressing specific questions. It may not address issues about a technology that's being researched but instead will provide only "rules of thumb." Current and reliable information is usually expensive and difficult to obtain.

Sources of Information

Government sources can also provide excellent information. This type of information is usually available at no charge on the Internet. Census bureau reports provide demographic data for businesses and organizations. Many federal agencies compile data for regular reports on relevant industries. Likewise, patent databases provide information relative to which technologies are applying for patents and which approved within specific industries. Government agencies are not good sources of web links because they do not want to be interpreted as endorsing any company.

Quicklook Technology Assessment

Quicklook research is designed to be quick and inexpensive, the goal of the Quicklook technology assessment is an early-stage report of commercial potential. These assessments help to identify the "cream of the crop" or the technologies that have the greatest commercialization value.

The Quicklook assessment process has many important characteristics. It uses primary research, rather than secondary. Primary research is the discovery or generation of new knowledge; secondary research locates existing, documented knowledge or information.

The Quicklook process gathers "first-hand" information through direct interaction with people. Typically, the Quicklook would require interviews with experts in order to generate new knowledge about a potential new market. Other important characteristics include the identification of potential partners or licensees; major warning signals of high-risk commercialization factors; and potential benefits and value of the technology.

The first step is to talk to potential customers, licensees, and users. To direct the research, we begin by identifying market potential as well as the potential users for the technology. Sometimes,

market use is not obvious. Often the researcher must work with the inventor and other experts to identify market uses. Identifying experts and potential licensees is critical because these people can add insights into the marketplace and technology landscape. This activity will often be the critical factor in a successful Quicklook assessment. Telephone interviewing is the primary research method used in the Quicklook process; it allows direct and real-time feedback as it answers critical questions and issues.

Not every technology has an obvious market use. This may be particularly true for government or university research. Talking to the inventor is an important step because he or she can explain not only the technology and its development stage, but also why it was developed. Brainstorming gives additional perspectives and can yield new uses. Certainly, the investigator will research only the most likely markets. Commercial markets for other products that offer similar benefits and features may provide another kind of lead to identify markets not previously envisioned.

Sources of Information

Potential users and licensees help identify whether and how a product will fit into the marketplace. Industry associations exist in almost every field of industry or technology interest area. These associations have lists of similar companies and knowledge of key players that will lead to important contacts. The Internet is also a valuable tool for seeking contacts.

When researching non-consumer goods, it is usually best to contact experts in R&D and in marketing. R&D managers give good feedback on the technology and how it fits into the current market's technology mix. Marketing managers know current conditions that impact a technology, such as market size, competitors, and buying requirements.

After contacts are identified, the next task is to obtain their expert opinions on the technology, its benefits, and how it will meet needs in the marketplace. Understanding the market's potential reaction to proposed benefits helps define whether it is headed in the right direction. It's crucial to emphasize the benefits of the technology. Talk about what the technology does or enables others to do; do not talk about how it works.

Generally, Quicklook assessments are completed before patents are secured, thus it is important not to disclose how a technology works at this early a stage in its development.

Contact Questions and Considerations

Sample questions for contacts include:

- Would a product with the technology's characteristics be important to you?
- What is your estimation of the size of the market?
- What other products are currently meeting this need?
- And what is an appropriate price for this product?

Broad answers to these questions will indicate whether or not the technology is worth pursuing and can lead to other contacts, markets, or directions in research. The expert should be engaged in a conversation rather than a question and answer format; this way, more comprehensive information can be obtained.

Collecting Information

When collecting information, it is important to reconfirm data. Ask the expert to reconfirm information obtained from earlier interviews. This allows building on or disagreement with earlier assessments, and can give valuable information about trends. Thus, the research will yield multiple confirming sources. Another technique is to offer an example based on an educated guess, and lead the interviewee to respond to some type of range, such as for high and low price

the technology will command. For a Quicklook, you can get a pretty good idea of a potential marketplace after seven to ten productive calls. Conflicting information may lead to more calls; but remember, the goal of Quicklook is to get data quickly and cheaply.

Barriers

An important part of Quicklook is related to identifying barriers and opportunities. Barriers to entry often determine the fate of a technology; they can be bumps in the road or they can be brick walls.

- Market barriers include size of market, competition, or cost of entry.
- Technology barriers include costs of testing, competitive technologies, and inability to retrofit to existing equipment.

The identification of barriers should be backed up with data in the form of market feedback or market statistics.

Finally, as barriers are uncovered, opportunities often emerge. You may find a potential licensee or customer based on market feedback, or you may find a way around a barrier that leads to a more promising partner. In the appendix C is presented information related to the Quicklook report and a Quicklook outline.

In-Depth Technology Assessment

Technologies that successfully pass through the Quicklook technology assessment and receive the "go" recommendation are then critically assessed using the In-Depth assessment.

The In-Depth assessment has a report section for each assessment step, together with an executive summary. Each step will be labeled with the words, "Process/Report".

It is necessary to define the scope of the assessment process to establish boundaries in terms of where most time is spent. Questions answered include:

- How many different markets will be included?
- What time frame is being considered?
- What geographical areas are of interest?
- What are the strategic questions the assessment is trying to answer?

The answers to these questions will help the researcher narrow the scope of the In-Depth assessment.

To describe the technology for the In-Depth process, the breadth and depth of information collected is much greater. Do not assume everyone understands the technology as thoroughly as you do. Determine the technical attributes, but use layman language that the decision-maker can understand. Describe the benefits very specifically. Consider who will benefit beyond the obvious end user. Back up your theories by getting opinions of technical experts. List problems the technology can solve and identify opportunities the technology will be able to facilitate.

When describing the technology, it is also important to identify:

- Competing or alternative technologies
- What other technologies are currently being used to solve the same problem that will be addressed by the new product?
- Identify who is using similar technologies.
- Focus on problems and opportunities

Just because the technology is different does not mean it won't have significant competitors. Specify the sustainable advantages of the technology. These include performance principles of operation and cost, but should not include how the technology itself works. Finally, identify and describe potentially undesirable effects of the technology. These may be environmental factors, the prompting of competition, or pricing reactions. Considering negative effects early can avert unwanted "surprises" later on.

For the Quicklook assessment, public information sources are used only to obtain background information; for the In-Depth assessment these sources yield important data and are important to each of the steps of the assessment. To complete an In- Depth assessment, a thorough search and analysis of available information is required in the following areas: government research and development patents, including patent abstracts, licenses, white papers provided by individual agencies, roadmaps and strategic plans, conference reports including the Internet, and standards bulletins.

Private Sources of Information

Private sources of information are also essential for the In-Depth assessment. They include newsletters and technical journals, market reports, information from accounting firms, association roadmaps or sector strategic plans, and local news sources. Newer market reports can be expensive; while older reports are often free, they also can provide useful background information. Students can often get newer information at a reduced fee or at no cost. Market reports can be obtained through universities or from friends at larger companies.

In the appendix D is presented information related to the In-Depth report and an In-Depth outline.

Market research is the key to evaluate the technology, in early stage technology evaluation primary market research is an excellent way to get feedback directly on the invention in question rather than information about the market in general. In later stage technology evaluation, secondary market research place a much larger role because the technology is closer to the market, is important to understand the framework of the marketplace. Secondary market research is excellent for quantitative data.

Knowledge/Technology Transfer

Knowledge/technology transfer is a concept that's continuing to attract more and more attention. Because knowledge adoption and utilization is key to any successful and competitive business, community or nation, it's become an increasingly relevant and important topic in the global economy.

There are a number of ways to model the Knowledge/Technology Transfer (or KTT) activities that industry uses to organize and manage innovation.

Fundamentally, all KTT models share a five- level conceptual framework of technology transfer and adoption. The levels are:

- Quality of R&D
- Acceptance
- Implementation
- Adoption
- Market Penetration and Diffusion.

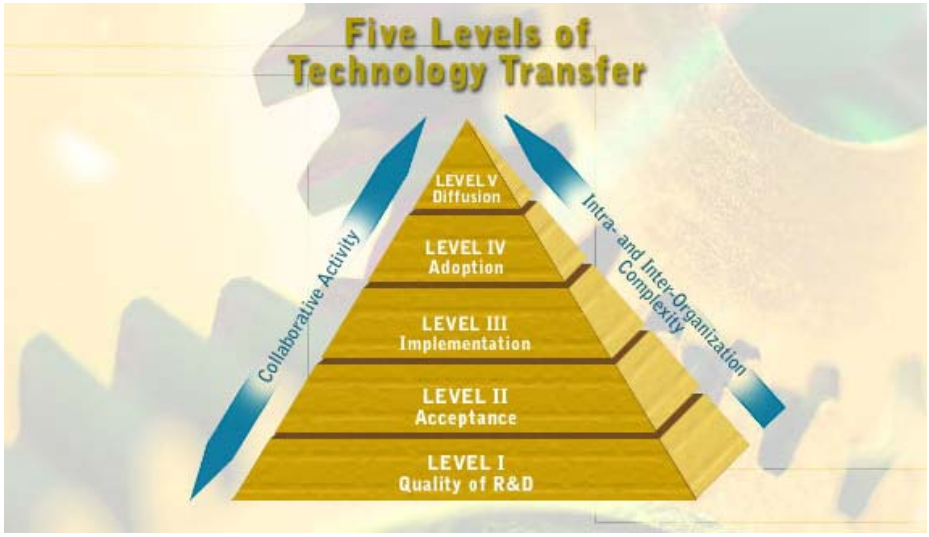


Exhibit 28

The framework delineates the levels of involvement, not the linear process flow. However, complexity does increase significantly from Level I to Level V. The framework demands parallel activities and multi-dimensional collaboration.

Level I is the Quality of R&D

Is the point at which technology development occurs. The quantity and quality of research is the primary concern in Level I. At this level, technology transfer plans and processes are frequently less important than research strength and scholarly reputation.

How can the quality of R&D be determined? There are several criteria that can be measured. Is the R&D recognized and rewarded with follow-on research grants? Are results accepted for publication in professional journals? What feedback and critique is received from peer review? At this level, quality can be measured in terms of intellectual property, which can be protected as an asset to the company.

Level II is Acceptance

Technology acceptance calls for the beginning of shared responsibility between researchers and the receptors of the research - the implementers. Acceptance occurs when technology is transferred across personal, functional, or organizational boundaries. It's not complete until the technology is accepted by the receptors.

Some will argue that successful tech transfer at this level is just a matter of getting the right information to the right people at the right time. But this deceptively simple formula for success holds its own challenges. Is it the right information? -- Will they champion it? Will it solve their problem or their customer's problem? Are they the right people? - Do they control the necessary resources to go forward with implementation? Is it the right time? - Are you too far ahead or behind the marketplace? For success to occur, the receptors - the users - must have the knowledge and resources necessary to test the technology."

Sometimes instead of acceptance at Level II there is no acceptance within the sponsoring organization. That's when spin- out or start-up entrepreneurial activities may take over. For the start-up to be successful, it must replace the know-how it loses when

breaking away from its original sponsor. Examples of know-how include technology ownership, finance, management, manufacturing, and sales and distribution.

Level III Implementation

If Level II successfully results in acceptance, then we move to this level, which is defined as moving the technology out of the prototype stage and into a production environment. Timely and efficient manufacturing or internal use of the technology marks successful implementation. Adequate industrial strength is required in order for implementation to succeed. The company must have an effective engineering organization to complete the product-level designs. It must have the ability to ramp up production, sales and distribution, and customer support services. It must do all of this in a timely manner, in the face of existing or ramping global competition.

Level IV is Adoption

This level centers on product/process commercialization and builds cumulatively on the successes of the first three levels. It requires market strength. You need to know your customer; that is, who has the problem and who's shopping for a solution. Are you addressing the needs of a large market segment? Feedback from technology adopters validates the transfer process. Success is measured by return on investment and market share. To move from Level I to II to III to IV you need pull or push. Markets create the pull. New-to-the-world technologies create the push. It's the entrepreneur or technology champion that pushes the process."

Level V is Market Penetration and Diffusion

As the capstone of the Knowledge/Technology Transfer pyramid, Level V contains a few key elements that should be noted. First, market penetration should be a familiar concept, but diffusion in a technology transfer context may be new. Market penetration and diffusion need to be considered in terms of national and global perspectives. At Level V new technology is combined with other technologies and products. It's the process of looking for new markets, looking across a firm, and across an industry - both nationally and globally."

To summarize, moving from level to level requires multidimensional collaboration. And complexity increases significantly as the technology (and perhaps the technology developers) move from Level I to Level V. The growing number of participants and observers measure success factors at each level differently. There should be a great deal of parallel processing going on between all of the levels. Although the levels are presented in a linear manner, in reality, it isn't a linear process. But this is simply a good way to organize knowledge/technology transfer as a framework. The challenge is to get people to communicate across different cultural areas and different levels of technology limitation. Feedback is not necessarily a rational process. It's very complex.

Moving technology from Level I (where the research is done) through acceptance, implementation, adoption and diffusion is not the kind of process you can force. It often includes different organizations with different perspectives. Sometimes there are global partners with cultural or language barriers. It takes collaboration for it all to work. A more mature collaborative state helps speed this process. But it's important to reiterate that the Knowledge/Technology Transfer process cannot use shortcuts or be managed to move faster. It'll move at the pace allowed by the boundaries of organizations and people's responsibilities.

Finally, let's examine the criteria for judging the success of technology transfer.

Criteria for Judging Technology Transfer Success

Level I

- Research grants
- Journal articles
- Peer reviews

Levels II and III

- Patents
- Technology licenses
- Technology applications

Levels IV and V

- Commercialization

Lesser Criteria for Judging Technology Transfer Success

- Learning from failures
- Collaborative experience with customer support organizations
- Small incremental wins
- Increased intra- and inter-firm communications
- Learning how to collaborate

Remember also that success metrics are specific to situations. A researcher's view of success is different from that of a person involved in sales. Regardless of the researcher's type of R&D environment, many of them want market share. They want royalties. They want profits. The bottom line, the ROI, is increasingly being used to judge the overall success of the knowledge/technology transfer process.

Note: The information presented in this chapter was taken from two courses of the IC2 Institute of the University of Texas at Austin used in the Master of Science degree in Science and Technology Commercialization program.

STC 380 Converting Technology to Wealth, May 2001, Professors in charge: Dr. Rayan Bagchi & Brett Cornwell.

STC 383 Technology Management and Transfer: Theory and Practice, May 2001, Professors in charge: Dr. David Gibson & Meg Wilson

CHAPTER 9

PROJECT MANAGEMENT

While thinking about the development of business plans for technology-based projects it is logical to think about the product development of hardware or software goods, this is why project management is so important. Project management helps you manage and transform ideas into products, to evaluate and find gaps in the process of developing technology followed in the desired to commercialize the technology and to manage the improvements, modifications and/or new versions of the technology.

Venture capitalist recommends focusing on implementation. Guy Kawasaki, CEO of Garage.com mentioned in his speech "So you want to be an Entrepreneur" at Babson College on May of 2000, "During the first fifteen years of my career, I thought that the key to entrepreneurship was the quality of the idea. I was wrong. Good ideas are easy. Even great ideas are easy. Ideas are not the key to entrepreneurship. Implementation is the key, and furthermore, the key to implementation is building a great team."

ComputerWorld, Inc. report that the annual losses of failed projects reach $100 US billions and 50% of the projects exceed +180% his estimated budget. The Standish Group found that 83 % of the projects fail somehow. Therefore, to include a project management section is very important in development of a business plan.

First at all we need to understand the basis of project management area.

"Organizations perform work. Work generally involves either operations or projects although the two may overlap. Operations and projects share many characteristics; for example, they are:

- Performed by people,
- Constrained by limited resources,
- Planned, executed, and controlled.

Operations and projects differ primarily in that operations are ongoing and repetitive while projects are temporary and unique." [13]

What is a project?

It is a work that is executed by a single time, has a beginning and an end; an objective specified with clarity; an established budget and is performed by an organization (perhaps temporary and who can be dismantled at the end of the project)

Most-Common Project Restrictions

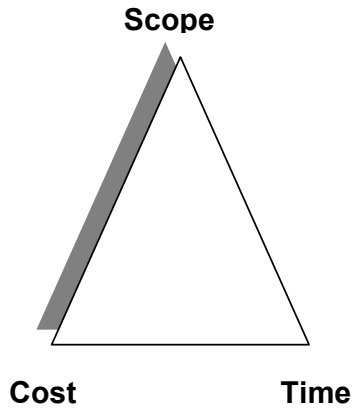


Exhibit 29

What is project management?

It is a dynamic process that uses structured and controlled suitable resources of the organization, to obtain clearly objectives; and that was identified as strategic necessities. It is always executed under an assembly of restrictions

"Project management is the application of knowledge, skills, tools, and techniques to project activities to meet project requirements." [13]

Project Processes

A process is a series of actions bringing about result. Project processes are performed by people and generally fall into one of two major categories: [13]

Project management processes are concerned with describing and organizing the work of the project. The project management processes that are applicable to most projects, most of the time can be organized into five groups.

Project Management Processes

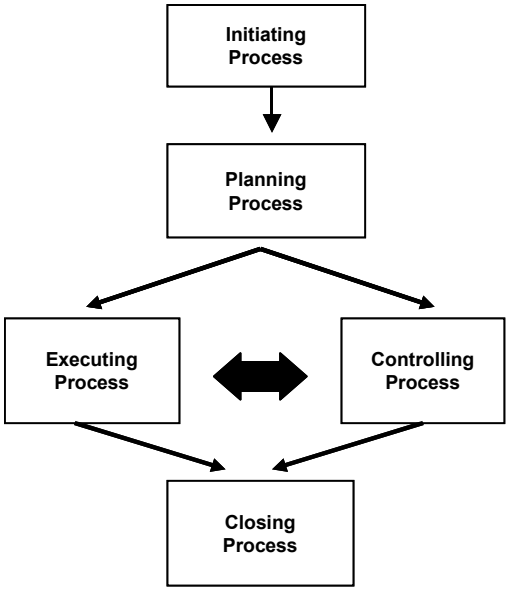


Exhibit 30

Initiating Processes: recognizing that a project or phase should begin and committing to do so, authorizing the project or phase.

Planning Processes: defining and refining objectives and selecting the best of the alternative courses of action to attain the objectives that the project was undertaken to address.

Executing Processes: coordinating people and other resources to carry out the plan.

Controlling Processes: ensuring that project objectives are met by monitoring and measuring progress regularly to identify variances from plan so that corrective action can be taken when necessary.

Closing Processes: formalizing acceptance of the project or phase and bringing it to an orderly end.

The process groups are linked by the results they produce—the result or outcome of one often becomes an input to another. Among the central process groups, the links are iterated—planning provides executing with a documented project plan early on, and then provides documented updates to the plan as the project progresses. In addition, the project management process groups are not discrete, one-time events; they are overlapping activities that occur at varying levels of intensity throughout each phase of the project. Next figure illustrates how the process groups overlap and vary within a phase.

Overlap of Process Groups in a Phase

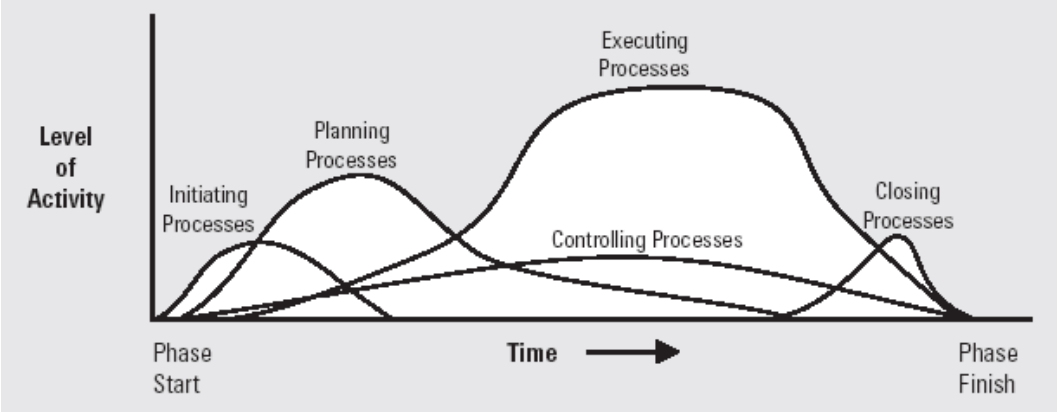


Exhibit 31 (PMI Standards Committee[13])

Product-oriented processes are concerned with specifying and creating the project product. Product-oriented processes are typically defined by the project life cycle and vary by application area.

The project phases are known as the project life cycle. Each project phase is marked by completion of one or more deliverables. A deliverable is a tangible, verifiable work product such as a feasibility study, a detail design, or a working prototype. The deliverables, and hence the phases, are part of a generally sequential logic designed to ensure proper definition of the product of the project. The conclusion of a project phase is generally marked by a review of both key deliverables and project performance in order to:

(a) Determine if the project should continue into its next phase and
(b) Detect and correct errors cost effectively.

The successful key for the projects is to differentiate perfectly between the project management process and the product-oriented process.

Project management processes and product-oriented processes overlap and interact throughout the project. For example, the scope of the project cannot be defined in the absence of some basic understanding of how to create the product.

Project Management Knowledge Areas

The Project Management Knowledge Areas describes project management knowledge and practice in terms of its component processes.

These processes have been organized into nine knowledge areas as described below and as illustrated in the next figure.

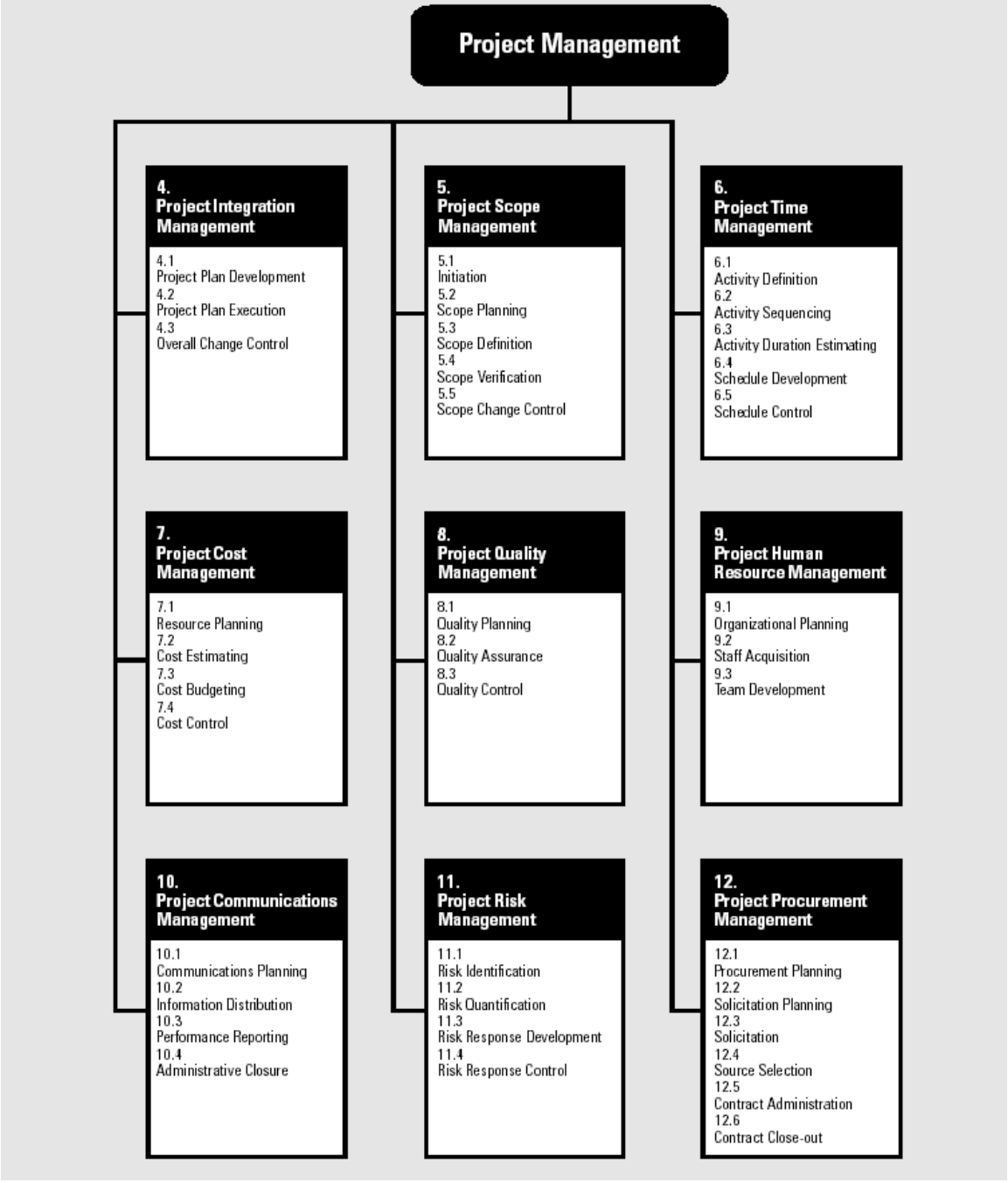


Exhibit 32 (PMI Standards Committee[13])

Project Integration Management describes the processes required to ensure that the various elements of the project are properly coordinated.

Project Scope Management describes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.

Project Time Management describes the processes required to ensure timely completion of the project.

Project Cost Management describes the processes required to ensure that the project is completed within the approved budget.

Project Quality Management describes the processes required to ensure that the project will satisfy the needs for which it was undertaken.

Project Human Resource Management describes the processes required to make the most effective use of the people involved with the project.

Project Communications Management describes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information.

Project Risk Management describes the processes concerned with identifying, analyzing, and responding to project risk.

Project Procurement Management describes the processes required to acquire goods and services from outside the performing organization.

Each area consist of specific tasks:

Project Integration Management

It consists of:

- Project plan development— integrating and coordinating all projects plans to create a consistent, coherent document.
- Project plan execution— carrying out the project plan by performing the activities included therein.
- Integrated change control— coordinating changes across the entire project.

Project Scope Management

It consists of:

- Initiation—authorizing the project or phase.
- Scope planning— developing a written scope statement as the basis for future project decisions.
- Scope definition— subdividing the major project deliverables into smaller, more manageable components.
- Scope verification— formalizing acceptance of the project scope.
- Scope change control— controlling changes to project scope.

Project Time Management

It consists of:

- Activity definition— identifying the specific activities that must be performed to produce the various project deliverables.
- Activity sequencing— identifying and documenting interactivity dependencies.

- Activity duration estimating— estimating the number of work periods that will be needed to complete individual activities.
- Schedule development— analyzing activity sequences, activity durations, and resource requirements to create the project schedule.
- Schedule control— controlling changes to the project schedule.

Project Cost Management

It consists of:

- Resource planning— determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.
- Cost estimating— developing an approximation (estimate) of the costs of the resources needed to complete project activities.
- Cost budgeting— allocating the overall cost estimate to individual work activities.
- Cost control— controlling changes to the project budget.

Project Quality Management

It consists of:

- Quality planning— identifying which quality standards are relevant to the project and determining how to satisfy them.
- Quality assurance— evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
- Quality control— monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

Project Human Resource Management

It consists of:

- Organizational planning— identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.
- Staff acquisition— getting the needed human resources assigned to and working on the project.
- Team development— developing individual and group skills to enhance project performance.

Project Communications Management

It consists of:

- Communications planning—determining the information and communications needs of the stakeholders: who needs what information, when they will need it, and how it will be given to them.
- Information distribution— making needed information available to project stakeholders in a timely manner.
- Performance reporting— collecting and disseminating performance information. This includes status reporting, progress measurement, and forecasting.
- Administrative closure—generating, gathering, and disseminating information to formalize phase or project completion.

Project Risk Management

It consists of:

- Risk management planning— deciding how to approach and plan the risk management activities for a project.
- Risk identification— determining which risks might affect the project and documenting their characteristics.
- Qualitative risk analysis— performing a qualitative analysis of risks and conditions to prioritize their effects on project objectives.
- Quantitative risk analysis—measuring the probability and consequences of risks and estimating their implications for project objectives.
- Risk response planning— developing procedures and techniques to enhance opportunities and reduce threats from risk to the project's objectives.
- Risk monitoring and control—monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle.

Project Procurement Management

It consists of:

- Procurement planning— determining what to procure and when.
- Solicitation planning— documenting product requirements and identifying potential sources.
- Solicitation—obtaining quotations, bids, offers, or proposals, as appropriate.
- Source selection— choosing from among potential sellers.
- Contract administration— managing the relationship with the seller.
- Contract closeout— completion and settlement of the contract, including resolution of any open items.

Modern Focus of Project Management (technology-based projects)

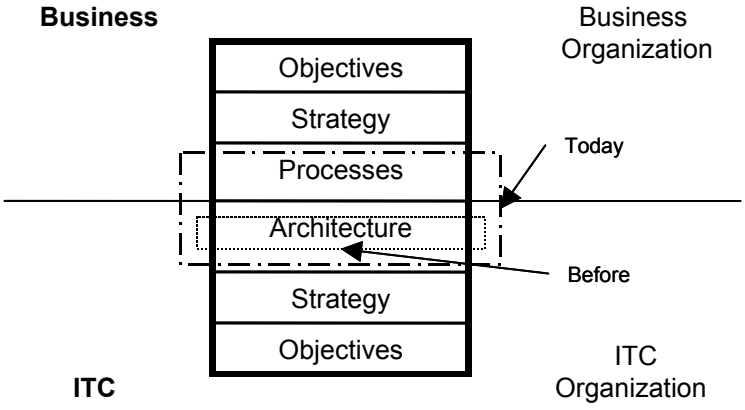


Exhibit 33
(Gustavo Cervantes, Project Management Course, ITESM Campus Mty., MTI)

CHAPTER 10

THE MARKETING PLAN

A marketing plan for technological innovation is a document that examines the marketing situation related to the product/service/technology, analyzes the opportunities and threats arising from it, sets objectives and develops marketing strategy to introduce it into the market place.

The marketing plan, if done well, serves two purposes:

1. It serves as tool to persuade stakeholders (e.g., upper management or investors) that your marketing strategy is based on the current situation in the market and is defensible.
2. Once completed and approved, the action programs, or action plans, lay out the marketing-related steps you will follow to achieve your objectives.

A marketing plan has two audiences:

- Upper management, or a funding source
- Customer

The objective of developing a marketing plan is to think through, in a disciplined way, what your situation is, what you want to accomplish, and how you're going to get there. Ultimately, you're trying to develop effective marketing strategy ("sell" an idea, license a technology, introduce a new product, support an existing product).

The marketing plan will contain the key findings of a variety of research tasks.

The marketing plan, as you can see below, contains eight sections.

Marketing Plan

- Executive Summary
- Marketing Situation Analysis
- Opportunity and Issue Analysis
- Objectives
- Marketing Strategy
- Action Programs
- Projected Profit-and-Loss
- Controls

Section I - The Executive Summary is simply a one-page overview outlining the key situational factors, opportunities, objectives, and strategies.

Section II – the Marketing Situation Analysis provides an in-depth analysis of what is often called the 5C's.

- Customers
- Competitors
- Collaborators
- Company
- Context / Macro environment

Plus: Market Potential and Demand

The objective is to determine an in-depth understanding of your customers, competition/industry, collaborators and the macro-environment, or context. Clearly you also need to examine the situation of your own organization or company as well.

Another important part of the Situation Analysis is to analyze the data (5C's) to arrive at an estimate of the market potential and demand for your product or service.

Section III – The Opportunities/Issues Analysis pulls together the background data and makes conclusions and judgments about it.

- Analyze current situation (5 C's)
- Identify opportunities/threats (external)
- Identify organizational strengths and weaknesses that are related to those opportunities and threats (internal)

Section IV – Objectives. This section lays out the objectives. These include how many units you expect to sell, what market share you expect to achieve, what profitability levels you expect to see, and so on. Obviously, to do this, you will have to know how to estimate market potential and demand.

- Financial Objectives
- Marketing Objectives

Section V – Marketing Strategy – This section lays out your key marketing strategies. Which customers are you going to focus your efforts on? How are you going to differentiate you offering from those of your competitors? What kinds of promotional, pricing, distribution, and product development strategies are you going to use?

- Segmentation, Targeting
- Differentiation, Positioning
- Marketing Mix (4 P's):
    - Product
    - Price
    - Promotion
    - Place
    - (Positive Word of Mouth)
    - (Presence / Credibility)

Section VI – Action Programs – This section lays out the specific tactics you're going to use.

TACTICS (specifics and timing):

- Product Design details
- Pricing details
- Promotional details
- Place/distribution/alliance details

Section VII – Projected P&L. This lays out the financials you expect to see the plan yield.

One-Year Basic Financials:

- Sales Units
- Sales Price and Gross Sales
- Cost of Goods Sold
- Gross Margin
- Marketing Expense
- SG&A Expense
- Net Margin

Section VIII – Controls - This identifies how you are going to track your progress and address contingencies.

- Methods of tracking progress
- Methods of evaluating progress
- Contingency plans

The most important element to develop a marketing plan is the market research, so before analyzing in detail the sections II, III, IV &V of the marketing plan is necessary to know what is market research.

Market Research

The overriding purpose of market research is to reduce uncertainty and risk. Clearly, it is impossible to eliminate it, but it is possible to reduce it.

Market research, carefully planned and executed, is very helpful.

From thinking about the elements of the marketing plan, there are considerable needs for marketing research in order to develop defensible marketing strategies.

Some of these needs can be filled through an examination of existing data within your organization. Others will require searching for existing data through libraries, databases, trade associations, and the Internet. Still others will require conducting original research.

Basically, there are two types of information that you can use:

- **Subjective Information** refers to information and judgments you already have in your mind, based on your experience. In reality, it serves an important purpose, especially if you already have a deep understanding of your customer and competition. It allows you to move quickly – without waiting for the results of a research study. At the same time, though, because of the ways our minds work, subjective information often carries with it our own biases and wishes.

  Subjective information is particularly helpful in two situations:

  - The first is when you are initially generating ideas for new products. It is important at this point to generate a high number of ideas – brainstorming for quantity. Moreover, if you have a particularly new technology, customers may not be able to tell you what they want or need. Your own understanding of the technology and your customers may be the best place to start.
  - The other situation where subjective information is helpful is when you have to move very quickly in order to preempt a move by a competitor. In this case, you simply may not have the time to conduct research.

- **Objective Information**, on the other hand, comes from data that you gather through market research.

It is important to note that while it may sometimes be necessary to make decisions based on intuition, it is important to recognize the high rate of error in those intuitions so data works better most of the time.

Research is usually defined as being either “primary” or “secondary”. We’ve described it before in the Technology Assessment section.

Primary Data: Refers to data that you collect yourself. You will find that each has strengths and weaknesses.

There are five major types of primary research. These are surveys, interviews, focus groups, observation, and experimental.

1. Survey Research uses questionnaires with set questions. There are several basic types: mail surveys, telephone surveys, and more recently, internet-based surveys.

> Pros: Quantitative; Larger sample, therefore more credible regarding the general population you are studying; Relatively inexpensive.
> Cons: Only as good as: the sample you use; the questions you ask

2. Interviews entail speaking one-on-one with another person. These can last anywhere from 5 minutes to two hours. One type, the "intercept" interview, entails approaching people at trade shows or other public locations/gatherings, and asking if they would be willing to talk with you for a few minutes. More in-depth interviews are normally arranged by appointment and allow for a deeper conversation.

> Pros: Rich data; Can follow up on unexpected themes
> Cons: Expensive; Data applicable only to *that* person (not generalizable)

3. Focus Groups entail gathering 6-10 similar people in a room with a skilled moderator. The meeting typically lasts 1-2 hours. During this time, the moderator asks the group for their views on a product or issue and then encourages the group to continue the discussion. The moderator typically has a clear picture of the types of information desired, and a good moderator is able to guide the conversation rather than control it. At times, in certain facilities, individuals involved with the development and/or marketing of the product may be able to observe the focus group through a two-way mirror.

> Pros: Rich data; Bounce ideas off of each other
> Cons: Social pressure may affect answers; Expensive (but less than interviews); not generalizable.

4. Observation entails exactly that – watching people. One major flaw in survey and interview research of any kind is that there is tendencies for respondents to tell you what they think you want to hear. In observational research, the respondent may or may not know s/he is being observed. In either case, they will rarely know why they are being observed. One notable exception to this is the concept of empathic design – an observational technique that places product design professionals next to users for the purpose of observing what steps they pass through when using the product/service and what features of the product prove easier or more difficult to use.

> Pros: Get the *real* story, not just what they say; very reliable
> Cons: Expensive; time consuming

5. Experimental research entails designing a scientific experiment for the purpose of determining cause and effect.

> Pros: Most scientifically valid; Observation; Gets at *causal* relationships (e.g., offer same product in two similar stores at two different prices)
> Cons: Expensive; time consuming.

Secondary Data: Refers to data that has already been gathered and, in many cases, analyzed.

The first source of secondary data is usually internal company data. This is usually the most accessible, and is formatted in a way that you can readily use.

The major benefit of secondary research is that it permits you to avoid "re-inventing the wheel." If someone has already conducted research on particular industries or competition, and if those studies have been published, or are publicly available, you may be able to save considerable time and expense.

On the whole, secondary data is relatively fast, recognizing that you may need to spend several days combing through databases and/or periodicals. Considering that collecting the same data from scratch could easily take months, this is a very real time savings. Similarly, secondary data is relatively inexpensive. Much can be found in libraries or on the web. Other sources, e.g., private databases, are relatively expensive. None-the-less, they are probably still much cheaper than conducting the research yourself. Finally, it is usually readily available and may be of very high quality.

On the other hand, with secondary data, you will rarely find exactly the question you are trying to answer. You will likely find other information that could help you arrive at an answer approximating the one you're seeking. In addition, you may find the exact article that could address your needs, only to discover that it is ten years old and therefore out of date.

Sources of secondary data include annual reports, trade associations, professional associations, statistical abstracts of the countries, National Trade Databases, the Survey of Buying Power, trade and consumer publications, the Trade Shows and Professional Exhibits Directory.

Still other sources of information include talking to your customers, suppliers, contractors and distributors. You can conduct benchmarking studies, enter into partnerships with companies / organizations for learning purposes, and take study trips. Other great sources of information include patent and licensing reports, SEC filings, advertising agencies, advertising agencies, trade shows, conventions, associations.

So now that you know how to go about collecting information (market research), let's get into the specific types of information you will want to know about your customers and/or potential customers in order to develop effective marketing strategy.

Section II

Marketing Situation Analysis (customers)

There are a number of factors that influence people when they are making buying decisions. For consumers, these include:

Cultural factors: include factors such as ethnicity and social class.

Social factors: include the effects of family and social, or reference, groups. They also refer to the roles that individual's play and their status levels in their families or social groups.

Personal factors: include the individual's age, occupation, economic status, lifestyle, personality, and self-concept.

Psychological factors: include their levels of motivation, the perceptions they have about the particular product or service they are thinking about purchasing, how quickly/slowly they learn, and their general beliefs and attitudes.

In a business-to-business setting, the factors that affect buying behavior include:

> Environmental factors: include general environmental elements that affect business climate such as the level of demand, the economic outlook, interest rates, the rate of technological change, political and regulatory developments, competitive developments, and social responsibility concerns.
>
> Organizational factors: include the organization's objectives, policies, and procedures. They also include the organizational structure and cultural issues, such as degree of autonomy in decision-making. They also include the general processes and systems that the organization uses.
>
> Interpersonal factors**:** include the interests of your potential buyer, his or her status and level of authority in the organization, and persuasiveness. After all, your buyer is going to have to be able to persuade others that your solution to their problem is the one they should purchase.
>
> Individual factors: include all of the same personal factors that will affect any consumer, such as age, income level, education, job position, personality, attitudes toward risk and cultural background.

A final factor that is a key influence, both on consumers and on business buyers, is:

> Their attitude towards innovation and risk: A buyer with a low tolerance for risk is not likely to invest in an unproven product, while an "innovator" will embrace the newest technology simply because it is the newest.

The more you understand about the factors that influence your potential customers, the better you will be able to meet their needs, and the more effectively you will be able to use your limited resources to attract their interest and support.

Individuals usually pass through a series of stages when making a decision to "buy" a product, service, or idea.

1. Recognition of Need
2. Information Search
3. Evaluation of Alternatives
4. Purchase Decision
5. Post-Purchase Behavior

First, of course, they must recognize that they have a need, or a problem to be solved.

Second, they search for information. This happens in two ways. First, they become more aware of the information they see around them that relates to that idea/product/service. Second, they begin to actively seek information to help them make the decision.

Third, they evaluate the various alternatives they have found. Clearly, as part of this, they will decide the criteria that is important to them, for example, "How much does it cost?" or "How well does it solve my problem?" Then they will compare the various alternatives based on those criteria.

Fourth, they make a decision to purchase, or accept, the idea. At this point, it is possible that something could happen to change their minds before making the purchase, such as a change in the situation or the receipt of additional information.

Finally, after they purchase/accept the idea/product/service, they will evaluate whether or not they were happy with that decision. And that will determine whether they do so again in the future. In appendix E you can examine some tools to understand customers.

As you start thinking about ways to persuade organizations to "buy" your idea, product, or service, there are some models you can use to clarify your thinking and strategy development.

One theory of organizational decision-making is called the Buy-Grid Model. In reality, the buy-grid model is made up of two pieces:

1. Buy-Phase Mode

The Buy-Phase Model suggests that organizations go through a series of steps when they make a buying decision.

1. Recognition of need
2. Definition of the product-type needed
3. Development of detailed specifications
4. Search for qualified suppliers
5. Acquisition and analysis of proposals
6. Evaluation of proposals and selection of supplier
7. Selection of an order procedure
8. Evaluation of product performance

They move from recognizing a need to defining the type of product needed, to developing detailed specifications, to searching for qualified suppliers to gathering and analyzing proposals, to evaluating those proposals and selecting a specific supplier, to selecting an order procedure, and finally, to evaluating the performance of the product.

Think, for a moment, about what you could do to stimulate the recognition of need in a potential customer or licensee. How might you be of service in helping a potential customer or licensee to define the type of product or service they might need, or to help them in defining their specifications? Further, what actions could you take to make sure that you, or your organization, or your technology, comes to mind when the potential licensee or customer starts a search for qualified suppliers?

There are many cases where organizations do not go through all of these steps when they make buying decisions. For one thing, not all buying decisions are important enough, or costly enough, to require that kind of process. Moreover, even if a particular buying decision was important and complex, once the decision is made, products are often bought over and over – automatically.

These cases actually refer to three types of Buy-Class.

2. Buy-Class

New Buy (or New Task): refers to a situation where the customer's organization has never purchased the product/service before. In this case, all of the steps are taken, with particular emphasis on product definition and specification development. It relates to the fact that the buyer has no experience with this product or service and must become educated about it in order to make a purchase.

Modified Re-buy: refers to a situation where an organization is considering a re-buy but wants to shop around. The buyer therefore does have some experience with this product or service. The process would include nearly all of the same steps, but there would probably be a less intense need for education.

Straight Re-buy: refers to automatic purchasing. The only steps would be "Need Recognition" and "Placing an Order" (Step 7).

If you are introducing a new technology to a market, it is likely that you would be looking at a New Buy or a New Task situation for your potential licensees/customers. It makes sense, therefore, that when you start developing marketing strategy for a product/service stemming from a new technology, it will be very important to provide detailed, educational advertising to help users understand how your product could substitute for the old method of solving the problem. It will also be important to use demonstrations at trade shows, or free trials or demonstrations at the customer's site, to show how it works.

Clearly there is an enormous emphasis at this point on understanding the customer's needs and showing how the new product satisfies those needs better than old methods. It is also possible that you could become a potential supplier in a modified re-buy situation. The key issue would be to figure out how to persuade the buying organization that your product/service could accomplish a given task better than a current supplier. In this case, advertising could focus on how your product solves the problem better than existing methods/competition. Along with comparison advertising, you could also focus on site demonstrations and/or hospitality events at trade shows.

While it is unlikely that you would be involved with straight re-buys, it may be helpful to you to see the difference in marketing strategies for this situation. In this case you would focus on reminder advertising and build a positive image for you/your company, use hospitality events at trade shows and focus on building personal relationships with the decision-makers/purchasers in the customer's organization. You may also wish to encourage automation of the purchasing process.

Another concept that will help you think through this is the concept of Buying Roles.

In most organizations, the buying function includes a number of people with different roles. The group of people involved in making a decision is often referred to as the "buying center" or the "decision-making unit".

Within a buying center, a number of different roles are often apparent.

Initiators: typically start the purchase processes because they recognize a need.

Influencers: typically try to affect the decision-maker's final decision through making recommendations regarding suppliers or products/services that are best suited to solve the organization's needs.

Users: may often play an influencing role, or simply provide a user's perspective. They are often indirectly involved as decision makers take users' needs into account before making decisions.

Decision-makers: are the people who make the final decision. This could range from the CEO to an individual user, depending on the size of the organization and the size/cost/complexity of the purchase.

Purchasers: are often purchase agents within organizations. This is the person who actually makes the purchase.

Gatekeepers: are people who control information into and out of the buying group or between members of the group. Clearly they could have an impact simply by deciding who gets what information.

Marketing Situation Analysis (market potential and demand)

First is important to understand the meaning of the following terms.

Market: All actual and potential buyers of a product

Market Demand: Total volume that would be bought by:

- A defined customer group
- In a defined geographic area
- In a defined time period
- In a defined marketing environment
- Under a defined marketing program

Market Potential: The limit approached by market demand as industry marketing expenditures approach infinity, for a given environment.

A common misunderstanding is the distinction between market potential and market demand.

Market potential refers to how many potential customers are in the market. These are customers who could be served by you or any of your competitors, and who may or may not be currently interested in your product/service. It is a measure of "how high up could be" given infinite amounts of spending. Another ways to say "potential" is to say "maximum market demand."

Potential vs. Demand

There are five key factors that limit market demand less than potential. Roger Best in his book called Market-Based Management refers to it this way:

Awareness: These potential customers would buy the product if they knew it was available and accurately understood its benefits.

Availability: Potential customers are aware, able to buy, and have the desire to buy, but this product or service is not available in their geographic market.

Ability to Use: Although the product is affordable and attractive, customers are not able to use it because of the use environment in which they operate. These customers lack the knowledge, other resources, and/or requirements to make the product or service workable.

Benefit Deficiency: The key benefits of the product or service are not important (or are even unattractive) to a subset of potential customers.

Affordability: Regardless of product attractiveness or perceived benefits, the cost is simply too high for some consumers.

Clearly, one of the biggest challenges for commercializing any new technology or high tech product is to assess the market potential, and then, the possible levels of demand that you could achieve given specific levels of marketing spending.

Steps in Assessing Market Potential or Demand

1. Define a market segment to target.

   The first step in assessing market potential is to define who your target market is.

2. Analyze Customer Behavior

   Next, it is important to analyze customer behavior. You could do this through focus groups, surveys, concept tests, or interviews.

3. Define Externalities

   The next step is to go back into your Situation Analysis to the Context/Macroenvironment section and the Competition section and pull out all of those external factors that could have an impact on your business.

4. Declare and Use Several Sets of Assumptions

   Then, based on that information, you will need to declare several sets of assumptions. What would be an “optimistic” view of all of the elements in your situation analysis? What level of market potential could that represent? Similarly, identify a “most likely” scenario, and a “pessimistic” scenario.

   Once you have completed this “due diligence” portion of your analysis, you can start to develop forecasts. Develop forecasts based on each.

5. Use various methods – and triangulate

   In estimating potential, one of the most critical concepts is to estimate it using several approaches. Then, using those approaches, make a best estimate of what the potential would be. That is, use 3 or so approaches to triangulate to a “best guess” number. It is important to recognize that these market potential estimates are, more often than not, wrong. None-the-less, they provide you with a greater understanding of the market and estimate of potential. It is extremely important for you to constantly revisit and revise these numbers over time.

   Methods:

   Market Research: especially in highly innovative markets, may not be practical.

   Expert Opinion: one of the most effective ways to determine market potential is to talk to experts – and ask what they think. You can find experts through universities, trade associations, customers, suppliers, the government, and within your own organization.

   Trend Analysis: works well provided that you have historical data. Historical data (sales history, penetration history on similar new products), analyze (regression analysis, compound annual growth rate (CAGR)), make assumption, use rate to project into future.

   Market Build-up Method: is actually quite intuitive, and common. It simply means identifying all of the potential buyers (e.g., companies) in each of your individual markets, and adding them all up.

   Method of Analogy: in this case you pick a market at a similar stage of development as the one of interest, and then make the assumption that the ratio between various products will be the same.

   Chain Ratio Method: start with a rough base number as an estimate for market size. Systematically fine-tune it by applying a "chain" of percentages to get to a meaningful estimate of total market potential.

There are also a few errors you want to try to avoid. The first, defining the market too broadly, is quite common. Remember that before defining the size of the market, it is necessary to determine which market segments, or groups of customers, have a need for the technology, product, or service that you offer. Another enormously common error is not updating assumptions. Marketing potential estimates should be updated frequently based on more information that comes to light as you are developing and launching the product.

Marketing Situation Analysis (competitors)

A common statement by individuals developing business plans for new technologies is "our product/service is revolutionary. We have no competition." This belief represents an enormous risk. In fact, a major cause of failure in high-tech start-ups is that they lack information about the industry and competition. Companies that launch into a market where they believe they have no competition often discover too late that they were wrong. There are two ways to look at the concept of competition.

- Brand Competition, views competition as companies that sell very similar products and services.
- Functional Competition, views competition as any product/service that fills the same need as your product/service.

A competitive analysis typically includes four steps.

- Identify Industry and Industry Trends

  First, you must identify the industry in which you expect to compete. As mentioned briefly before, this is important in two ways. First, it is important to understand the industry in which you compete in order to anticipate trends (for example, is you industry stable, growing, or declining) and develop strategies to address them. It is also important to understand the industries in which your potential customers compete. When you are considering commercialization of a new technology, either through selling or licensing, you typically have a number of potential "customer" industries. Certainly it would be a better use of resources to invest your promotional spending on customers in a growing industry rather than a declining industry.

  An industry is a group of firms producing products/services that are close substitutes for each other. This is especially important to understand if you are launching a new technology into the market. It is common to believe that your new technology, or high tech product/service, is so unique that there are no competitors. In reality, there are nearly always substitutes. And substitutes, because they represent solutions to the problem(s) you are addressing, are competitors.

  A very important part of writing a marketing plan is in doing the "due diligence" of stepping back to analyze the industry in which you compete and also your competitors. What is the outlook for the industry? What are the trends in the industry? Is it a growing industry, or is it stable?

  One very helpful way to analyze an industry is through Porter's Five Forces (Porter, 1980). In appendix F you can examine it, and also you can find information at the chapter called Industry Analysis.

- Identify Competitors

  Once you've taken a good look at the industries, the next step is to identify the key competitors. This can be done in a variety of ways.

A major cause of failure in high-tech start-ups is that they lack information about the industry and competition. One reason for this is that they often view their "technologies" as having no competition. In reality, they may have no "brand" competition – but they usually do face functional competition. That is, the particular need that this new technology solves is probably already being met in some way. What is it? It is very important to identify who the functional competitors may be.

One of the easiest is to simply talk to people in the industry. A similar one is to talk with trade associations. Another approach is to determine the SIC (Standard Industrial Classification) code, or the newer NAICS code for the industry(ies) of interest. The reference librarian at your local library could point you to resources to find lists of companies by SIC codes. Many web-based databases can also give you a listing of companies by SIC code.

- Analyze Competitors

As you start to conduct research on each of these competitors, ask yourself the following questions. First, what are their strengths and weaknesses? Here you would examine their sales, financial and share trends, their production and technology strengths and capabilities. You would also want to examine their assumptions – how do they view themselves and the industry? You can learn this through searching for articles in trade journals and periodicals.

Assumptions (may or may not be accurate)

About itself (e.g., socially conscious, industry leader, low cost producer, quality)
About the industry and other companies in it (will it keep growing)

Questions to answer about their strategies include:

- Do they follow explicit or implicit strategies, i.e., do they have a specific plan and strategies to address it, or do they just kind of muddle through?
- What are it's key operating policies in key functional areas, e.g., Product Line, Target Markets, Marketing, Sales, Distribution, Manufacturing, Labor, Purchasing, R&D, and Finance/Control?

Questions about their goals, objectives and expansion plans typically include one or more of the following:

- Current profitability
- Market share growth (may mean deferred profitability/longer-term profitability)
- Cash flow
- Technological leadership
- Service leadership

Porter identifies four types of reaction patterns.

- Laid back – don't react, or do so slowly
- Selective – react only to certain types of attacks (e.g., price cuts but not advertising)
- Tiger – swiftly and strongly to anything (e.g., P&G with detergent)
- Stochastic – no predictable pattern

- Interpret, Summarize Results

  There are enormous resources available to conduct competitive intelligence. One error that people who are learning to do this repeatedly commit is that they try to get the information exclusively from the Internet. In reality, more data can be found by talking to people.

Marketing Situation Analysis (collaborators)

A review of your current alliances, or an examination of potential collaborators, will be considerable help to you when you sit down to develop marketing strategy.

There are a number of different alliances in which you, or your organization could be involved.

These include market entry alliances, company learning alliances, and marketing alliances.

Marketing Entry Alliances, such as distributor agreements, asst you in breaking into markets.

Company Learning Alliances are related to setting up a partnership to gain expertise; perhaps in exchange for market entry.

Marketing Alliances

Product/Service Alliances: One company licenses another to produce product, two companies jointly market complementary products or a new product.

Promotional Alliances: One company agrees to carry a promotion for another company's product/service.

Logistics Alliances: One company offers logistical services for another company's product.

Pricing Alliances. One or more companies join in a special pricing collaboration.

Questions to answer in this section of Situation Analysis

- What alliances do we have? With whom are they?
- What are our alliance goals?
- What are the alliance goals of our partners?
- How is each alliance structured?

Contracts

Medium term
Long term

Equity

Minority investments
50/50 equity
Partnerships
Joint ventures
Majority equity control

Be a little careful here in terms of the scope of your analysis. Your main objective is to understand enough about these alliances to determine if they could have an impact on your choice of marketing strategy for launching a new product.

In terms of the information you would need to put into the Situation Analysis for a marketing plan, what strategic alliances do you participate in that could affect your marketing strategy?

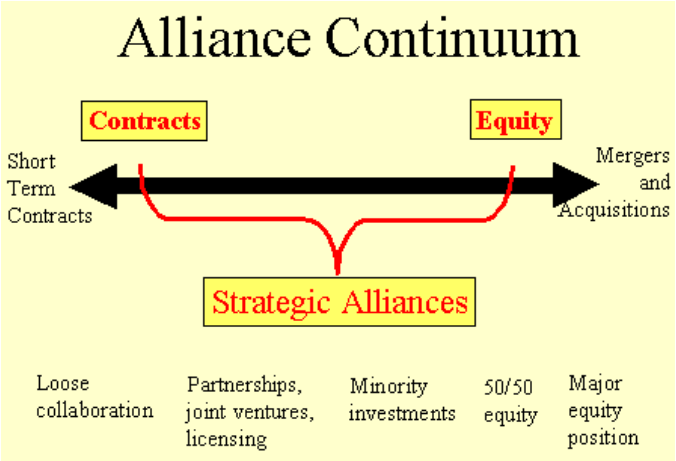


Exhibit 34
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

Marketing Situation Analysis (context / macro environment)

Context, or the macro environment, refers to occurrences and trends that are outside of your industry and are outside of your domain of control. None-the-less, trends and changes in these factors have enormous impact on the success or failure of businesses. There are six major forces that you need to examine. Trends and events in this area include:

Legal/Political/Regulatory Trends: As governments make laws the rules for doing business change. These trends require a close watch. Typical trends in this area include legislation regulating business and growth of special interest groups.

Economic Trends: Clearly the state of the economy is going to have an impact on business, as will interest rates. Typical economic trends to watch include income distribution and savings, debt, and credit availability.

Technological Trends: Consider, for example, how certain technologies have appeared and disappeared over only the last 100 years, and the impact that those had on businesses. Typical trends include accelerating change, opportunities for innovation, varying R&D budgets, regulation of technological change.

Sociocultural Trends: Consider, for example, the trends toward healthier foods that have given rise to concern regarding genetic engineering. Things to look for here include persistence of core cultural values, existence of subcultures, shifts of secondary cultural values over time.

Natural Environment Trends: Here think about changes in raw materials availability, increased energy costs, increased pollution levels and the changing roles of governments.

Demographic Trends: As populations change, so do their needs. Changes to look for here include population growth, age mix, ethnic markets, education groups, household patterns, and geographical shifts.

In terms of developing a Situation Analysis, your responsibility is to ask questions regarding these topics. Are there any legal or regulatory trends that we can see that could have an impact (pro or con) on our business, etc.?

Section III

The Opportunities/Issues Analysis

The next step in developing a defendable marketing plan is to re-examine the information that you have gathered about your customers (or potential customer segments), the industry in which you are competing. However, rather than simply gathering facts and writing them up, you now get the chance to examine these facts in terms of:

1. The opportunities and threats they present
2. Your own strengths and weaknesses relative to those opportunities and threats
3. The key issues they represent in terms of marketing strategy.

It's important to be fairly precise with terms here in order to avoid confusion. Opportunities and threats refer to events, trends and facts in the EXTERNAL environment that could have an impact on the marketing strategies you will choose.

Strengths and weaknesses refer to INTERNAL concepts. That is, what are the strengths / weaknesses of your product, or technology, or company that would either allow you to take advantage of the opportunities or make you vulnerable to the threats? the point is that strengths and weaknesses are relative to the opportunities and threats presented to you in the Situation Analysis.

Key issues refer to exactly that. By the time you finish, you may have a fairly extensive list of opportunities and threats, and a substantial list of strengths and weaknesses that relate to them. But you already know that in order to get anywhere, you have to focus. Key Issues refers to the 3-5 most important issues that you will want to address in your marketing strategies. You are prioritizing the issues that arose in your S-W-O-T.

So, how would the example we provided above affect marketing strategies? In a number of ways: You could position the product as the safest option. You could decide to price the product fairly high because of the value that the product would provide to people. You could promote the product, in terms of advertising and publicity, as being the safest option. And so on.

Opportunities/Issues Analysis in sum:

- Analyze current situation (5 C's)
- Identify opportunities/threats (external)
- Identify organizational strengths and weaknesses that are related to those opportunities and threats (internal)
- Prioritize the SWOT's that you see in order to focus on developing strategy for the most important 3-5 issues.

Section IV

Objectives

Once you have a good understanding of the situation and your key issues, the next step is to develop objectives.

There are two forms of objectives that you will develop for a marketing plan:

- Marketing Objectives
- Financial Objectives.

There are several points that you should be aware of before starting to develop objectives.

1. A marketing plan is a one-year document (preferably).
2. An objective must be specific and measurable. That is, it must contain numbers.
3. Marketing objectives usually refer to sales volume, sales value (e.g., dollars), market share, or a certain level of awareness among your customer base.
4. Financial objectives usually refer to profitability levels. In this case we are most interested in Contribution Margin (Gross Margin) and Profit Impact (Contribution or Gross Margin less Fixed Costs).

   NOTE: The term Profit Impact is sometimes used in marketing budgets to identify the financial impact of a particular marketing strategy/course of action. It usually refers to only the product/service addressed in the plan and therefore does not reflect financial information for a larger organization. Profit Impact, while an unusual term, permits a clear understanding that it is a limited financial explanation.

Section V

Marketing Strategy

There are three key elements to marketing strategy.

- Segmentation and Targeting
- Differentiation and Positioning
- Marketing Mix

The first two, segmentation/targeting and differentiation/positioning, lay the foundation for the last one.

Segmentation refers to determining what different groups of people are there who might have a need for your product/service.

Note that the word used here is people, not companies. The reason for that is that it is always people within companies who make the decisions. While that may seem like an obvious statement, you would be surprised at the number of entrepreneurs who state that they are going to target “Fortune 500 Companies”. The key concept is to identify groups of people who have similar needs. Once you have examined several different segments, you will decide to zero in on one of those to get started. That is, you will target one specific market segment.

Differentiation refers to the fact that potential (and current) customers always view products in relative terms. That is, they think about a problem they have to solve and what all the different options there are to get it solved. They look at a number of competitive products and substitutes. They compare the attributes and features of these products across competitors. Finally, they decide that one of them meets their needs better than the others. Then they buy.

Differentiation refers to finding out what attributes and features are important to the people in your target and how your product/service compares to the competition and substitutes based on those attributes and features. Once you've figured out how you're different, then you can use advertising and packaging and sales promotion and the sales force to communicate that difference – and communicate it so well that it begins to stick in your customer's mind. That final place that you occupy in your customer's mind is called your positioning.

Segmentation/Targeting and Differentiation/Positioning are the very heart of marketing strategy.

The remaining elements are referred to as the Marketing Mix. They include:

Product Strategy: This refers to the development of a "whole product" that meets the needs of your customer. This includes the attributes and features discussed above as well as the full range of services, such as warranties and/or financing, that you offer with it. Another area of Product strategy is the process of New Product Development.

Pricing Strategy: This refers to how you are going to price your product/service (or even how you're going to price your technology in a licensing agreement) in a way that will offer a true value to your customer while providing to you a satisfactory return.

Promotion Strategy: This refers to a variety of elements including advertising, sales promotion, publicity, and personal selling.

Place/Distribution Strategy: This refers to the methods in which you intend to get your product/service to your customers. Do you intend to sell your product through retail distribution channels? Or perhaps you intend to sell directly to your business customers. Or perhaps you intend to use distributors to assist you in selling your products.

Positive Word of Mouth: This refers to the methods you can, and should use, to ensure that people say positive things about your products to others. This means finding people who act as Opinion Leaders for your target, and include them in your discussions and/or design. One common way to do this is with Beta Testing.

Presence/Credibility: This refers to the methods you can, and should use, to build a name for yourself. Start-ups often face the problem of lack of credibility, while established companies don't even have to think about this. Ways to establish credibility are to enter collaborative agreements with partners who do have presence/credibility. Other ways include taking on pilot projects, networking, and participating in associations.

Marketing Strategy (segmentation and targeting)

Very few companies seek to target all conceivable customers because different groups of potential customers have different needs. Therefore, it is necessary to focus on a specific group. This process is called market segmentation. A market segment is a group of customers with the same needs, buying behaviors, or other significant characteristics. After assessing the various customer segments that exist in the market, it is then possible to target one or more of those segments.

The official definition of market segmentation is that it is the process of dividing customers whose valuations of a product/service vary.

A market segment is a group of actual or potential customers who can be expected to respond in a similar way to a product or service offer.

Why is Segmentation Important?

Research demonstrates that adoption of new products/services/ideas is faster if the marketing strategy is compatible with the segment targeted.

Steps in Segmentation and Targeting

1. Identify Needs-based Segments in the Market

   In this first step, it is important to group customers into segments based on similar needs and benefits sought in solving a particular consumption problem. The first step in segmentation is to think through what needs people have that your technology / product / service / idea could solve. Are they looking for increased productivity? Are they looking for the lowest possible price? Are they looking for the best possible solution to their problem and price is not an issue?

2. Develop Profiles of the Resulting Needs-based Segments

   The next step is to figure out how to describe these segments in ways that would permit you to find them and know how to talk to them. That is, you will eventually need to send sales people out to talk to them, publish articles and/or advertise in trade journals that they read, and set up booths at trade shows that they attend. You will also have to be able to design messages that the sales people and/or advertising will deliver. What you say is a full decision set in and of itself. If you know more about these people that will help you decide what to say and how to say it.

   The most common set of descriptors are demographic descriptors. Other descriptive factors include operating variables, purchasing approaches, situational factors, and personal characteristics.

   These descriptive characteristics include things such as the industries the companies participate in.

   Demographic

   Industry: Which industries should we serve?
   Company size: What size companies should we serve?
   Location: What geographical areas should we serve?

   Operating Variables

   Technology: What customer technologies should we focus on?
   User or nonuser status: Should we serve heavy, medium, light, or non-users?
   Customer capabilities: Should we serve customers needing many or few services?

   Purchasing Approaches

   Purchasing-function organization: Should we serve companies with highly centralized or decentralized purchasing organizations?
   Power structure: Should we serve companies that are engineering dominated, financially dominated, and so on?
   Nature of existing relationships: Should we serve companies with which we have strong relationships or simply go after the most desirable companies?
   General purchase policies: Should we serve companies that prefer leasing? Service contracts? Systems purchases? Sealed bidding?

Purchasing criteria: Should we serve companies that are seeking quality? Service? Price?

Situational Factors

Urgency: Should we serve companies that need quick and sudden delivery or service?
Specific application: Should we focus on certain applications of our product rather than all applications?
Size of order: Should we focus on large or small orders?

Personal Characteristics

Buyer-seller similarity: Should we serve companies whose people and values are similar to ours?
Attitudes toward risk: Should we serve risk-taking or risk-avoiding customers?
Loyalty: Should we serve companies that show high loyalty to their suppliers?

3. Evaluate Attractiveness of Each Segment

Once you've described several potential market segments, the next step is to evaluate the attractiveness of those segments. One of the first things to consider is how large each one is. What is the market potential for each of the possible segments? If the segment is too small to bring you sufficient revenue it should either be discarded or combined with another similar segment.

Next, is it a growing segment? In most cases it would be a better business decision to focus one's efforts on a growing segment rather than on a stable or declining segment.

What is the competition like in industries that serve that market segment? Is it intense? Are there low barriers to entry? If so, it is likely that price will be a primary driver. If you have a technology that can provide a significantly lower price, then this might be an attractive segment for you.

How profitable will the segment be for you? This will entail understanding how much you will have to invest in designing customized products for them, will this be a segment that is price sensitive or a segment that is more interested in performance than price, how much you will have to invest in advertising, personal selling promotion, and distribution.

4. Select One Segment to Target.

Finally, select one segment to target first. After you have a foothold, and some cash flow, then you can think about moving into other segments.

Consciously choosing one segment upon which to focus your marketing efforts.

Marketing & Competitive Strategy (differentiation and positioning)

Differentiation is the process of finding the ways in which your product differs, or could differ, from the competition. Along with being different, it must also be a product that is important to your customer. Positioning is the creation of a product's perceived image in the mind of the customer.

What is often called positioning is really a two-step process. It is made up of:

1. Determine how your idea/product/ service is (or could be) different from the competition (Differentiation)

   Steps in Differentiation

   1) Rank customers' key desired attributes
   2) Determine which attributes competitors have/don't have
   3) Find the differentiating idea
      -A differentiating idea of importance to customers
      -Perceptual Maps help (a perceptual map is a tool to visualize data)
   5) Have the credentials/proof
   6) Communicate your difference (i.e., positioning)

   There are two other thoughts to be aware of when trying to find your point of differentiation.

   First, it will take time and effort to find "the" differentiating idea for your product. However, this is one of those activities that will pay out if done carefully.

   The second thought raises a problem that also arose in targeting. That is, having the discipline and courage to stick to one. Too many businesses try to present their products as being for everyone and for solving a multitude of problems. What happens here is that nobody trusts anybody who says they can be everything to everybody. Customers are more inclined to gravitate toward suppliers who have a specific expertise – a specific solution to their specific problem – one that also recognizes the difficulties of the customer's industry.

2. Design the company's offering or image so they occupy a meaningful and distinct competitive position in your target customer's mind. (Positioning)

   Positioning refers to the place that a product/service/idea/technology holds in a customer's mind.

   Now, before digging into this, it may be helpful to understand a little bit about how the brain works. That is, people form categories to sort out information. If they didn't they'd go crazy with all the different things we have to remember. Next, people remember more about things that interest them.

   People in different market segments (e.g., small office professionals, graphic artists) have different needs, and view different products as meeting those needs better than others. The fact that customers view the products differently is based on:

   1) The products have been "differentiated" by the manufacturer and
   2) Have been "Positioned" in those customers' minds through a variety of communications tools.

   In other words, a positioning strategy is used to communicate how you are different from the competition. As you develop the rest of your marketing strategies (the Marketing Mix; product, pricing, promotion, and place/distribution), you will be constantly keeping this positioning concept in mind. Because it is with the elements of the marketing mix that you communicate to your customers what that position is.

   A "Positioning Statement" is a statement that is usually provided to an advertising agency to assist them in developing advertising for your product. In writing a positioning statement, it is essential to provide the key information that the agency will need rather than to try to write creatively. It is also important to recognize that you target and

positioning statement will drive all further elements of the marketing mix. It will drive how you design the product, how you price it, how you promote it, how you distribute it, and how you stimulate positive word of mouth.

The next positioning statement format is from Geoffrey Moore's book Crossing the Chasm. Note that it includes the four key elements of a good positioning statement:

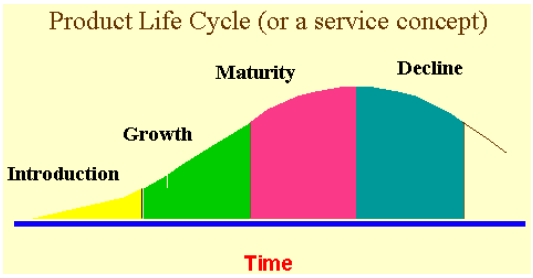
1) Identifies the target customer
2) Provides the competitive frame
3) Shows the point of difference.
4) Support/proof of why the claim is believable.

Marketing Strategy (marketing mix)

Typically there are four sets of strategies included here:

- Product strategy
- Pricing strategy
- Promotion strategy
- Place/distribution strategy.

In the special case of high technology commercialization, however, a fifth element is extremely important. This is positive word of mouth. Now, before moving directly into the marketing mix, it is important to remember that Segmentation/Targeting and Differentiation/Positioning actually drive the marketing mix.



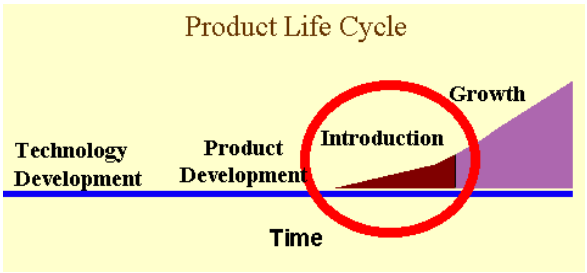
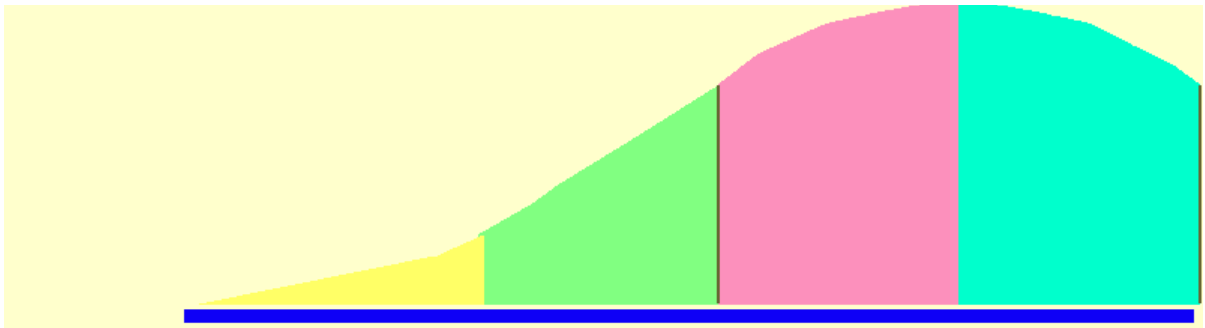


Exhibit 35
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

You will be focusing on introducing a product into the market place. So as you start to think about launch strategies for a particular product stemming from your technology, it will be important to think in terms of introductory and, to a lesser degree, growth strategies. None-the-less, an overview of the characteristics of each stage, and strategies that can be used to drive the business at each stage, are a helpful tool in understanding how the elements of the marketing mix work together.

You can see in the following figure that the different stages of the product life cycle have different characteristics.

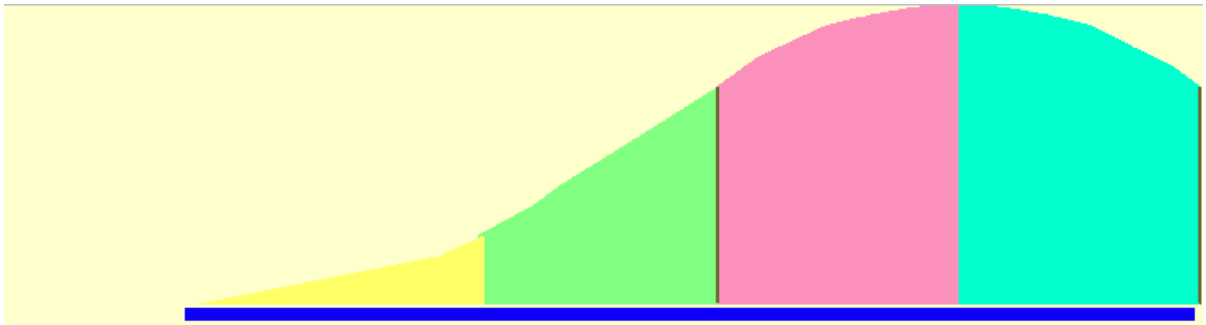


Characteristics	Introduction	Growth	Maturity	Decline
Sales	Low sales	Rapidly rising sales	Peak sales	Declining sales
Costs	High cost per customer	Average cost per customer	Low cost per customer	Low cost per customer
Profits	Negative	Rising profits	High profits	Declining profits
Customers	Innovators	Early adopters	Middle majority	Laggards
Competitors	Few	Growing number	Stable number beginning to decline	Declining number

Adapted from Kotler, Marketing Management, 9th Edition, p. 363

Exhibit 36
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

As a result of that, it seems intuitive that your marketing objectives would be different at different stages.



General Marketing Objectives	Introduction	Growth	Maturity	Decline
	Create product awareness and trial	Maximize market share; sustain growth as long as possible.	Maximize profit while defending share	Reduce expenditure and milk the brand

Exhibit 37
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

The next figure will provide you with an overview of how to use the Marketing Mix at different stages of the product life cycle.

Characteristics	Introduction	Growth	Maturity	Decline
Sales	Low sales	Rapidly rising sales	Peak sales	Declining sales
Costs	High cost per customer	Average cost per customer	Low cost per customer	Low cost per customer
Profits	Negative	Rising profits	High profits	Declining profits
Customers	Innovators	Early adopters	Middle majority	Laggards
Competitors	Few	Growing number	Stable number beginning to decline	Declining number
General Marketing Objectives	Create product awareness and trial	Maximize market share	Maximize profit while defending share	Reduce expenditure and milk the brand
Strategies				
Product	Offer a basic product	Offer product extensions	Diversify brands/models	Phase out weak items
Price	Try to use price/value; Cost-plus frequent; skimming vs. penetration	Price to penetrate market	Price to match or best competitors	Cut price
Distribution	Build selective distribution	Build intensive distribution	Build more intensive distribution	Go selective: phase out unprofitable channels
Advertising	Build product awareness among early adopters and dealers	Build awareness and interest in the mass market	Build preference; stress brand differences and and benefits	Reduce to level needed to retain hard-core loyals
Sales Promotion	Use heavy sales promotion to entice trial	Reduce to take advantage of heavy	Increase to encourage brand switching	Reduce to minimal level

Exhibit 38
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

In the appendix G are presented in detail the 4 (Product, Pricing, Promotion, Place/Distribution) strategies that compose the marketing mix.

Note: The information presented in this chapter was taken from one course of the IC2 Institute of the University of Texas at Austin used in the Master of Science degree in Science and Technology Commercialization program.

STC 382 Managing the Technology-Based Product Cycle, May 2001, Professors in charge: Dr. Kate Mackie

CHAPTER 11

INDUSTRY ANALYSIS

How should one go about analyzing an industry and competitors? What types of data does one look for and how can they be organized? Where does one look for data? This chapter deals with these questions and some of the other practical problems involved in conducting an industry analysis. As we read before in the chapter of the marketing plan there are basically two types of data about industries: published data and those gathered from interviews with industry participants and observers (field data.) In this chapter we will center on identifying the important sources of published and field data, their strengths and weakness, and the strategies for approaching them most effectively and in the right sequence.

A full-blown industry analysis is a massive task, and one that can consume months if one is starting from scratch. In beginning an industry analysis there is a tendency to dive in and collect a mass of detailed information, with little in the way of a general framework or approach in which to fit this information. This lack of method leads to frustration at best, and confusion and wasted effort at worst. Thus before considering specific sources, it is important to consider an overall strategy for conducting the industry study and the critical first steps in initiating it.

There are two important aspects in developing a strategy for analyzing an industry. The first is to determine just what it is one is looking for. “Anything about the industry” is much too broad to serve as an effective guide for research. Although the full list of specific issues that need to be addressed in an industry analysis depends on the particular industry under study, it is possible to generalize about what important information and raw data the researcher should look for.

A simple but exhaustive set of areas under which to collect raw data are given next:

Raw Data Categories for Industry Analysis

Data Categories	*Compilation*
Product lines	By company
Buyers and their behavior	By year
Complementary products	By functional area
Substitute products	
Growth	
Rate	
Pattern (seasonal, cyclical)	
Determinants	
Technology of production and distribution	
Cost structure	
Economies of scale	
Value added	
Logistics	
Labor	
Marketing and Selling	
Market segmentation	
Marketing practices	
Suppliers	
Distribution channels (if indirect)	
Innovation	
Types	
Sources	
Rate	
Economies of scale	
Competitors –strategy, goals, strengths and weaknesses, assumptions	
Social, political, legal environment	
Macroeconomic environment	

Exhibit 39
(Porter Michael E., Competitive Strategy, Techniques for Analyzing Industries and Competitors)

The researcher who can fully describe each of these areas should be in a position to develop a comprehensive picture of industry structure and competitors' profiles.
We present at the marketing plan chapter how to do a market research and those methods apply also to get information related to do an industry analysis.

The next exhibit gives a schematic diagram of the most important source of field data, which are participants in the industry itself, firms and individuals in adjacent business to the industry (suppliers, distributors, customers), service organizations that have contact with the industry (including trade associations), and industry observers (including the financial community, regulators, etc.) Each of these sources has somewhat differing characteristics, which are useful to identify explicitly.

Source of Field Data for Industry Analysis

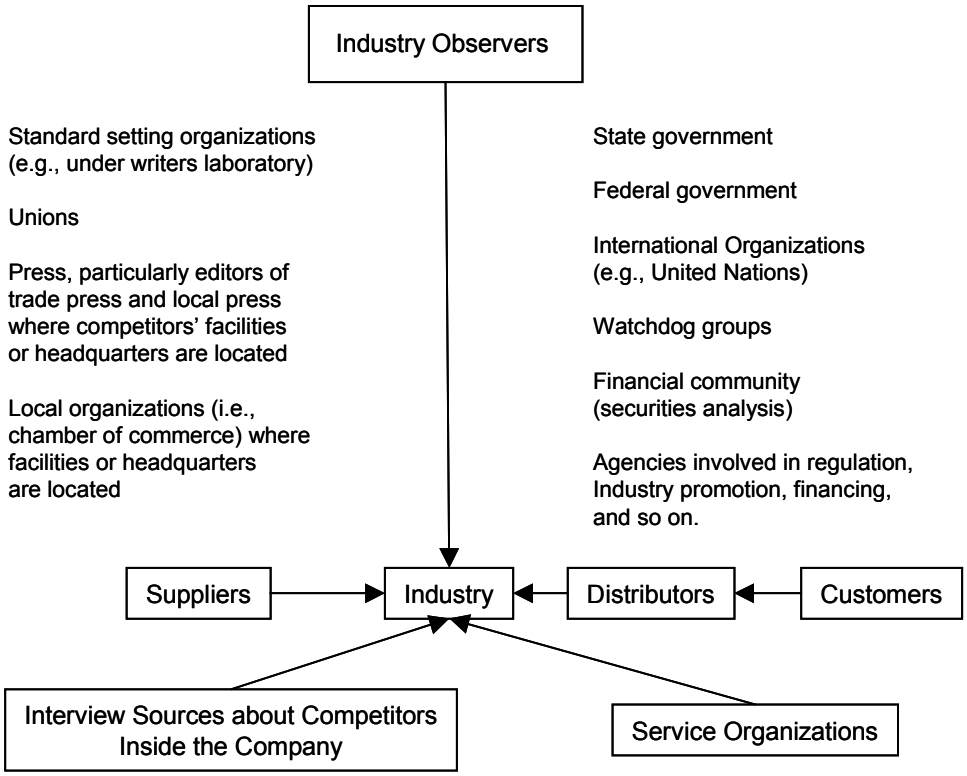


Exhibit 40 (Porter Michael E.)

The essence of formulating competitive strategy is relating a company to its environment. Although the relevant environment is very broad, encompassing social as well as economic forces, the key aspect of the firm's environment is the industry or industries in which it competes. Industry structure has a strong influence in determining the competitive rules of the game as well as the strategies potentially available to the firm. Forces outside the industry are significant primarily in a relative sense; since outside forces usually affect all firms in the industry, the key is found in the differing abilities of firms to deal with them.

The intensity of competition in an industry is neither a matter of coincidence nor bad luck. Rather, competition in an industry is rooted in its underlying economic structure and goes well beyond the behavior of current competitors. The state of competition in an industry depends on five basic competitive forces.

At the Marketing Plan chapter we introduce in the appendix F the concept of structural analysis as a framework for understanding the five fundamental forces of competition in the industry.

This structural analysis is used to identify at the broadest level the three generic competitive strategies that can be viable in the long run. These three generic strategies can be used singly or in combination for crating such a defendable position in the long run and outperforming competitors in an industry.

1. Overall Cost Leadership

   These consist to achieve overall cost leadership in an industry through a set of functional policies aimed at this basic objective. Cost leadership requires aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, and cost minimization in areas like R&D, service, sales force, advertising and so on. A great deal of managerial attention to cost control is necessary to achieve this aims. Low cost relative to competitors becomes the theme running through the entire strategy, though quality, service, and other areas cannot be ignored.

   Having a low-cost position yields the firm above-average returns in its industry despite the presence of strong competitive forces. Its cost position gives the firm a defense against rivalry from competitors, because its lower costs mean that it can still earn returns after its competitors have competed away their profits through rivalry. Also a low-cost position defends the firms against powerful buyers and suppliers and usually places the firm in favorable position versus the substitutes relative to its competitor in the industry.

   A cost leadership strategy can sometimes revolutionize an industry in which the historical bases of competition have been otherwise and competitors are ill-prepared either perceptually or economically to take the steps necessary for cost minimization.

2. Differentiation

   The second generic strategy is one of differentiating the product or service offering of the firm, creating something that is perceived industry wide as being unique. Approaches to differentiating can take many forms: design or brand image, technology, features; customer service, dealer network, or other dimensions. Ideally the firm differentiates itself along several dimensions.

   Differentiation, if achieved, is a viable strategy for earning above-average returns in an industry because it creates a defensible position for coping with the five competitive forces, albeit in a different way than cost leadership.

3. Focus

   The final generic strategy is focusing on a particular buyer group, segment of the product line, or geographic market; as with differentiation, focus may take many forms. Although the low cost and differentiation strategies are aimed at achieving their objectives industry wide, the entire focus strategy is built around serving a particular target very well, and each functional policy is developed with this in mind. The strategy rests on the premise that the firm is thus able to serve its narrow strategic target more effectively or efficiently than competitors who are competing more broadly. As a result, the firm achieves either differentiation from better meeting the needs of the particular target, or low costs in serving this target, or both.

The differences among the three generic strategies are illustrated in the next exhibit.

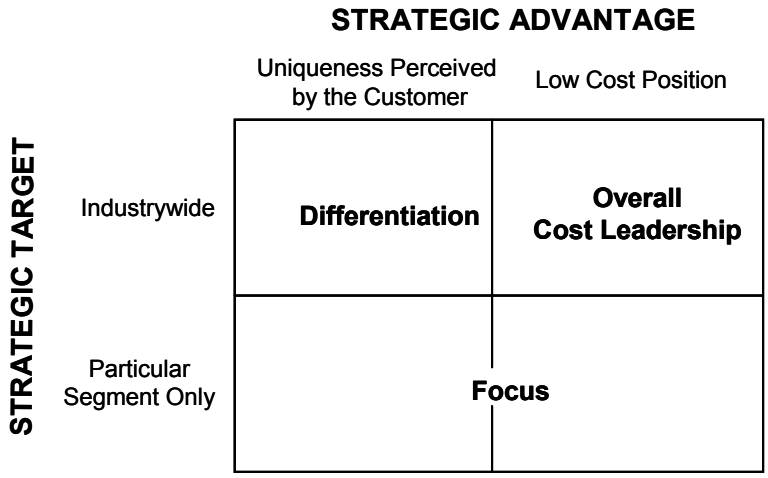


Exhibit 41
(Porter Michael E., Competitive Strategy, Techniques for Analyzing Industries and Competitors)

Fundamentally, the risks in pursuing the generic strategies are two: first, failing to attain or sustain the strategy; second, for the value of the strategic advantage provided by the strategy to erode with industry evolution. More narrowly, the three strategies are predicated on erecting differing kinds of defenses against the competitive forces, and not surprisingly they involve differing types of risks. It is important to make these risks explicit in order to improve the firm's choice among the three alternatives.

Risks of Overall Cost Leadership:

- Technological change that nullifies past investments or learning
- Low-cost learning by industry newcomers or followers, through imitation or though their ability to invest in state of the art facilities
- Inability to see required product or marketing change because of the attention placed on cost
- Inflation in cost that narrow the firm's ability to maintain enough of a price differential to offset competitors' brand images or other approaches to differentiation

Risks of Differentiation:

- The cost differential between low-cost competitors and the differentiated firm becomes too great for differentiation to hold brand loyalty. Buyers thus sacrifice some of the features, services, or image possessed by the differentiated firm for large cost saving.

- Buyers' need for differentiating factor falls. This can occur as buyers become more sophisticated
- Imitation narrows perceived differentiation, a common occurrence as industries mature

Risk of Focus:

- The cost differential between broad-range competitors and the focused firm widens to eliminate the cost advantages of serving a narrow target or to offset the differentiation achieved by focus
- The differences in desired products or services between the strategic target and the market as a whole narrows
- Competitors find sub markets within the strategic target and outfocus the focuser.

Competitive strategy involves positioning a business to maximize the value of the capabilities that distinguish it from its competitors. It follows that a central aspect of strategy formulation is perceptive competitor analysis. The objective of a competitor analysis is to develop a profile of the nature and success of the likely strategy changes each competitor might make, each competitor's probable response to the range of feasible strategic moves other firms could initiate, and each competitor's probable reaction to the array of industry changes and broader environmental shifts that might occur. There are four diagnostic components to a competitor analysis and these components are show in the next exhibit.

Components of a Competitor Analysis

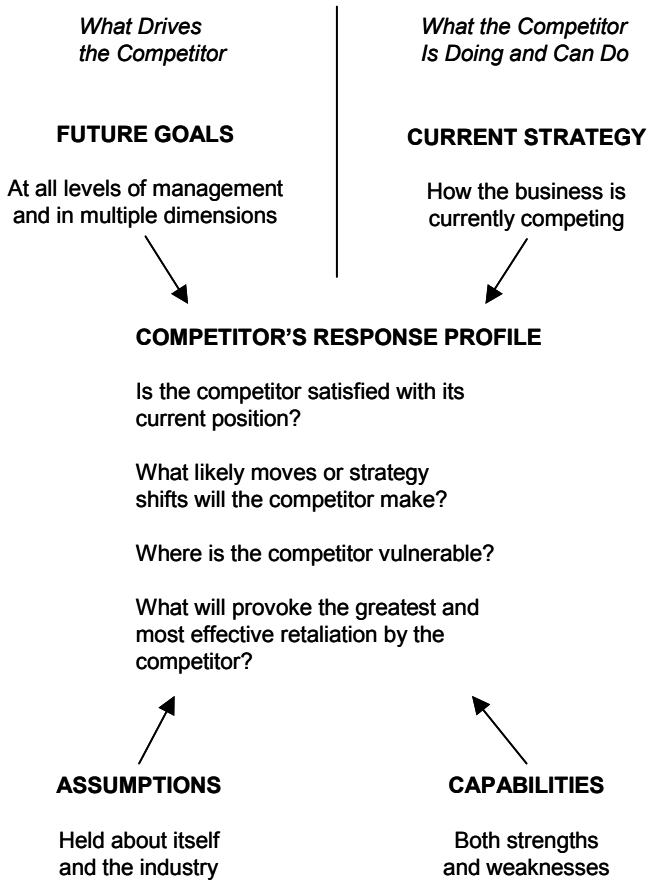


Exhibit 42
(Porter Michael E., Competitive Strategy, Techniques for Analyzing Industries and Competitors)

To do a competitor analysis is important to define which competitors should be examined. Clearly all-significant existing competitors must be analyzed. However, it also may be important to analyze the potential competitors that may come on scene. Forecasting potential competitors is not an easy task, but they can often be identified from the following groups:

- Firms not in the industry but who could overcome entry barriers particularly cheaply
- Firms for whom there is obvious synergy from being in the industry
- Firms for whom competing in the industry is an obvious extension of the corporate strategy
- Customers or suppliers who may integrate backward or forward

Another potentially exercise is to attempt to predict probable mergers or acquisitions that might occur, either among established competitors or involving outsiders. A merger can instantaneously propel a weak competitor into prominence, or strengthen an already formidable one. Forecasting acquiring firms follows the same logic as forecasting potential entrants. Forecasting acquisition targets within the industry can be based on their ownership situation, ability to cope with future developments in the industry, and potential attractiveness as a base of operations in the industry among other things.

At appendix H are present some techniques in competitor analysis.

An analysis of each significant existing and potential competitor can be used as an important input to forecasting future industry conditions. The knowledge of each competitor's probable moves and capacity to respond to change can be summed up, and competitors can be seen as interacting with each other o simulated basis to answer questions such as the following:

- What are the implications of the interaction of the probable competitors' move that have been identified?
- Are the firms' strategies converging and likely to clash?
- Do firms have sustainable growth rates that match the industry's forecasted growth rate, or will a gap be created that will invite entry?
- Will probable moves combine to hold implications for industry structure?

Note: Most of the information presented in this chapter was taken from the book: Porter Michael E., Competitive Strategy, Techniques for Analyzing Industries and Competitors, 2nd Edition, The Free Press, 1998

CHAPTER 12

FINANCIAL PLAN

Every entrepreneur planning a new venture faces the same dilemma: determining how much money is necessary to start the business.

An understanding of the basic concepts of accounting and finance is critical to the successful performance of all executives and businesspersons, whether they like it or not. In this section we want to help the nonfinancial persons to become knowledgeable about the fundamental accounting and financial need it to develop a financial plan for the business.

The purpose of the financial plan is to set out the financial implications of the strategy, to provide a measure of performance and to substantiate the financial requirements.

In this section of the business plan investors expect to see realistic financial projections, ideally, the period covered should be 3-5 years. The financial forecast should include three scenarios: a most likely, a most pessimistic, and a most optimistic.

While the 3-5 year forecast should be relatively detailed, is also important to highlight the key dimensions of the firm's financial performance- sale, earnings, and cash surplus (or deficit) in a summary form. [21]

So, the financial plan should contain a narrative summary covering: [5]

- Key assumptions underpinning your forecasts.
- Expected sales growth, year by year.
- Sensitivity of the forecast to any change in a significant variable: price, cost, sales volume, etc.
- Cash flow, cash requirements and major items affecting this.
- Capital investment needs and the anticipated payback on this investment.
- Optimistic and pessimistic scenarios at least in forecasting.
- Financial requirements, the purposes to which the finance will be put and estimated future needs, including the timing of these.
- Contingency allowances.

In preparing this narrative summary, it is important to remember that: [5]

- The figures will be compared with those prevailing elsewhere in the industry; they therefore need to be consistent with actual experience.
- The most common problem with the business plans is over optimism and unrealistic assessment of just how long it will take to archive the goals.
- Leaving things out or disguising difficulties is shortsighted. Eventually the will emerge and you will lose credibility if it takes someone else to flush out omissions.
- Uncertainty pervades any plan and those not forecasting in the first place. Do the forecast, but highlight key assumptions and areas of uncertainty.

The financial plan should included the following information:

- Balance Sheet
- Income Statement
- Cash Flow Statement
- Break-Even Analysis

It is critical that the financials be driven by thoroughly documented assumptions. For instance, don't just develop a sale forecast. Present detailed assumptions about unit volume and price. The same is true for expenses. This not only gives the investor data he/she needs to evaluate your

plan. It speaks volumes about your careful thinking. The financials should also clearly state the amount of money being sought, and to what uses it will be put. [21]

Investors will also be interested in how the venture plans on turning their cash back into cash. That is, what is the anticipated exit route for the investor: a public offering, a sale of the company, or a repurchase of shares by the firm. In the financial section, try to give potential investors some idea hoe they can cash out. While it's impossible to know what's going to happen in the future, investors will familiarize themselves with other firms in the industry in order to develop a sense of the appropriateness of the numbers forecast. Once they are satisfied that the projections are realistic, investors will use these financials to help them value the firm and calculate a potential price for their investment. [21]

While few entrepreneurs will be accountants, an understanding of some basic accounting concepts is crucial. Entrepreneurs should be familiar with such terms as gross sales, cost of goods sold, gross profit and the various designations of net income or profitability. In the appendix I are presented this information.

As companies differ in size and products, the financial planning process will differ from company to company. Next are presented a common elements used in financial plans.

Most financial planning models require the user to specify some assumptions about the future. Based in those assumptions, the model generates predicted values for a large number of other variables; almost all models will have the elements discussed next. [22]

Sale Forecast

The sale forecast will be the "driver," meaning that the user of the planning model will supply this value and most other values will be calculated based on it. This arrangement would be common for many types of business; planning will focus on projected future sales and the assets and financing needed to support those sales.

Frequently, the sale forecast will be given as the growth rate in sales rather than as an explicit sales figure. These two approaches are essentially the same since we can calculate projected sales once we know the growth rate. Perfect sale forecast are not possible, of course, because sales depend on the uncertain future stage of the economy and many other aspects.

Investors will be interested in evaluating alternative scenarios, so it isn't necessarily crucial that the sale forecast be accurate.

Pro Forma Statements

A financial plan will have a forecasted balance sheet, income statement and statement of cash flows. These are called pro forma statements, or pro formas for short. A financial planning model will generate these statements based on projections of key items such sales.

Asset Requirements

The plan will describe projected capital spending. At a minimum, the projected balance sheet will contain changes in total fixed assets and net working capital. These changes are effectively the firm's total capital budget.

Financial Requirements

The plan will include a section on the necessary financing arrangements.

This part of the plan should discuss dividend policy and debt policy. Sometimes firms will expect to raise cash by selling new shares of stock or by borrowing. In this case, the plan will have considered what kinds of securities have to be sold and what methods of issuance are most appropriate.

Economic Assumptions

The plan will have to state explicitly the economic environment in which the firm expects to reside over the life of the plan.

The most important elements of the financial plan are balance sheet, income statement, cash flow statement and break even analysis, those are explain next.

Balance Sheet

The balance sheet is a snapshot of the firm. It is a convenient means of organizing and summarizing what a firm owns, what a firm owes, and the difference between the two at a given point of time. [22]

Key estimates for the balance sheet are: [23]

- Accounts receivable, which can be forecast in either of two ways
- Inventory, which can be forecasting via complex modeling or estimated
- Debt-equity ratio, which depends on different estimates of the percentage of debt

The balance sheet, as we have mention describes the financial position of a company at one point in time. On this form, assets are listed first, and then liabilities. On a classified balance sheet, assets and liabilities are classified as current or long-term. Current assets are those that are used, sold or replaced within the current operating cycle or one year, whichever is longer. Long-term assets are those that last longer than one year and are often subject to depreciation--the allocation of the cost of an asset over a period of time for accounting and tax purposes. Current liabilities are debts that are paid off in the operating cycle or within one year, and long-term liabilities are debts that are paid off over many years. When all liabilities are subtracted from all assets, the remainder is called owner's equity or the claims against assets.

Assets: Over a period of time, a standard balance sheet format for the presentation of a business's basic financial data has evolved, in which assets are subdivided into three major categories: current assets, fixed assets, and other assets. [24] At appendix I are presented in more detail those concepts.

Liabilities and Shareholders' Equities: The right side of the balance sheet consists of the claims on the assets of a corporation. These are: (1) liabilities, which are the claims of the creditors, and (2) the claims of the owners, which are owner's equities. The liabilities and owner's equities sections of a balance sheet are also broken down to standard subclassifications: current liabilities, long-term liabilities, and shareholders' equity. [24] At appendix I are presented in more detail those concepts.

Income Statement

The income statement measures performance over some period of time, usually a quarter or a year. The income statement equation is: [22]

Revenues – Expenses = Income

If you think of the balance sheet as snapshot, then you can think of the income statement as a video recording covering the period between a before and an after picture. [22]

Key estimates for putting together the income statement are: [23]

- Sales, which should be based on convincing market research
- Cost of goods sold, which can involve complicated modeling or may be figured as a percentage of sales
- General and administrative expenses, which must be based on a detailed schedule for all items
- Selling expenses, which also require a detailed schedule

The income statement reports revenues and expenses for the accounting period--the result of operations. On this statement, both revenue and expenses are listed. Gross profit, income from operations, net income before tax and net income are terms used to describe the result of operations for the accounting period. At appendix I are presented in more detail those concepts.

Cash Flow Statement

By cash flow, we simply mean the difference between the number of money that came in and the number that went out.

The cash flow statement illustrates the changes in a business's cash position.

On the cash flow statement, cash flows are categorized into three types:

- Cash flows from operations: Operations cash flows are profits and expenses associated with the creation of a company's products or services.
- Cash flows from financing: Cash flows from financing include the owner's cash contributions as well as loans that the owner has taken.
- Cash flows from investing: Cash flows from investing include the purchase and sale of long-term assets.

Evaluation of the cash flow statement gives a real world estimate of the cash available for operating the business, and illustrates how well the company is performing compared to profitability measures.

Break-Even Analysis

Once business owners classify their costs, they can prepare a break-even analysis, a tool used by business owners to forecast the amount of sales that must be made for a company to cover their costs of production. The break-even point occurs when sales equal total costs. Each unit sold above the break-even point generates a profit for the business.

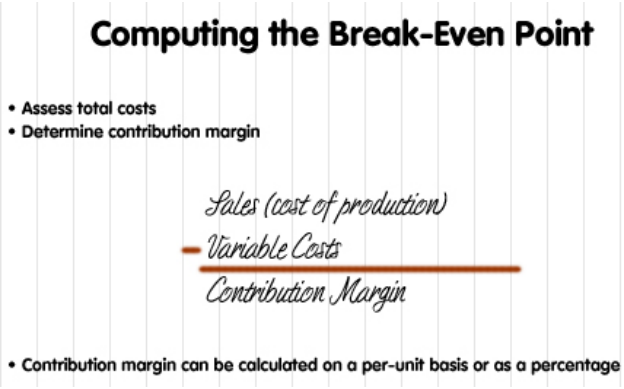


Exhibit 43

There are several different methods used to compute the break-even point. First, business owners must accurately assess their total costs. Once this is done, they must also determine the contribution margin. Determining sales, or the cost of production, and subtracting variable costs calculate this margin. The contribution margin is then applied to fixed costs. The contribution margin can be calculated on a per unit basis, or as a percentage.

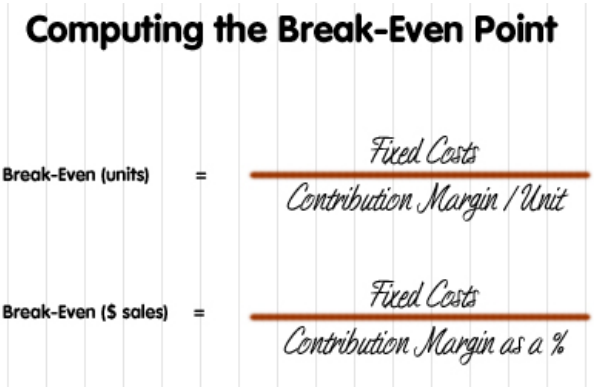


Exhibit 44

To determine the break-even point on a per unit basis, divide fixed costs by the contribution margin per unit. To determine the break-even point in gross sales dollars, divide fixed costs by the contribution margin as a percentage.

Performing break-even analysis becomes more complex when a company expands into multiple product lines and services. Mixed costs are those that have both fixed and variable components, like utilities, and telephone expenses. Mixed costs must be apportioned between their fixed and variable components. Statistical methods are applied to predict how much of a cost will be fixed and how much will be variable.

The break-even analysis helps to answers many important questions for example:

- How much do I have to sell to cover fixed costs?
- How will various scenarios affect my breakeven?
  -Lowering sales price
  -Increasing sales price
  -Increasing expenses such as marketing

Another important aspect to mention in the financial plan is the point about value creation, managers using simple revenue and earnings miss the point.

Most of the time with a venture capital investment in a start-up, the key issue is not near-term revenues and earnings, but the market's perception of value.

Once the potential for value creation has been identified, a company must determine how best to realize it or explain in detail the way the business should take. Options range from ownership and joint ventures to selling the business or licensing the technology, and may need to be reviewed at several points over the lifespan of a venture. Contrary to conventional wisdom, ownership is not usually the best path. Ownership, joint ventures, and other internal commercialization strategies are most likely to succeed with products or markets close to the core business. [25]

Next are presented the most common commercialization options. [25]

Commercialization Options

	Options	Possible reasons for selection
Internal commercialization	Retained ownership	Fit with other businesses Access to strong internal capabilities
	IPO	Create market upside for entrepreneurial leadership Capitalize on differences in perception of value between public and private markets Allow opportunities to monetize investment
	50/50 joint venture	Leverage complementary capabilities, geographic coverage, market access, or access to capital
	Sale of marketing rights	Create revenue stream while maintaining ability to build business Position for later sale/joint venture
	Research/ development contract	Lay technical foundation for multiple new applications by giving up near-term rights Create technical "design-in"; position for later sale/joint venture
	Licensing	Retain core intellectual property; leverage different applications Play off different expectations of value Supply multiple parties
Third-party commercialization	Sale	Remaining potential does not warrant continued investment or participation

Exhibit 45

Note: Some of the information presented in this chapter was taken from one course of the IC2 Institute of the University of Texas at Austin used in the Master of Science degree in Science and Technology Commercialization program.

STC 386T1 Financing The New Venture, May 2001, Professors in charge: Michael W. Brandl, Ph.D. & August Petersen, CPA

CHAPTER 13

RISK ASSESSMENT

Sooner –rather than later- the prospective investor will ask himself, “What is the risk, what sort of return can I expect for bearing this risk and how can I realize my investment?”

There are two ways of tackling the issue of risk. Either address the risks associated with the proposal at each section of the business plan at which these occurs or include a section in the business plan devoted specifically to risk. [5]

It is important to be realistic in appraising risks, neither selective nor over pessimistic about the difficulties; clear about how you intend to minimize the risk; be aware of potential objections to your proposals. Bear in mind that the investor’s objective is to maximize the investment gain, not exercise control over the business. What he needs to know is how valuable the company might become (and therefore what is the expected future value of the initial investment), and what routes are open to realizing a capital gain.) [5]

It’s important to think of a good business plan as a snapshot of an event in the future. That’s quite a feat to begin with–taking a picture of the unknown. But the best business plans go beyond that; they are like movies of the future. They show different aspects of the business from multiple angles. They unfold possibilities of action and reaction. Of course, the future is hard to predict. Still, it is possible to give potential investors a sense of the kind and class of risk and reward they are assuming with a new venture. [2]

One of the great myths about entrepreneurs is that they are risk seekers. All sane people want to avoid risk. As Harvard Business School professor and venture capitalist Howard Stevenson says, true entrepreneurs want to capture all the reward and give all the risk to others. The best business is a post office box to which people send cashier’s checks. Yet risk is unavoidable. So what does that mean for a business plan? It means that the plan must unflinchingly confront the risks ahead. What happens if one of the new venture’s leaders leaves? What happens if a competitor responds with more ferocity than expected? What happens if there is a revolution in Namibia, the source of a key raw material? What will management actually do? [2]

Those are hard questions for an entrepreneur to pose, especially when seeking capital. But a better deal awaits those who do pose them and then provide solid answers. A new venture, for example, might be highly leveraged and therefore very sensitive to interest rates. Its business plan would benefit enormously by stating that management intends to hedge its exposure through the financial-futures market by purchasing a contract that does well when interest rates go up. That is the equivalent of offering investors insurance. (It also makes sense for the business itself.)

Finally, one important area in the realm of risk/reward management relates to harvesting. Venture capitalists often ask if a company is “IPOable,” by which they mean, can the company be taken public at some point in the future? Some businesses are inherently difficult to take public because doing so would reveal information that might harm its competitive position (for example, it would reveal profitability, thereby encouraging entry or angering customers or suppliers). Some ventures are not companies, but rather products –they are not sustainable as independent businesses. [2]

Therefore, the business plan should talk candidly about the end of the process. How will the investor eventually get money out of the business, assuming it is successful, even if only marginally so? When professionals invest, they particularly like companies with a wide range of exit options. They like companies that work hard to preserve and enhance those options along the way, companies that don’t, for example, unthinkingly form alliances with big corporations that could someday actually buy them. Investors feel a lot better about risk if the venture’s endgame is discussed up front. There is an old saying, “If you don’t know where you are going, any road will get you there.” In crafting sensible entrepreneurial strategies, just the opposite is true: you had better know where you might end up and have a map for getting there. A business plan should be

the place where that map is drawn, for, as every traveler knows, a journey is a lot less risky when you have directions.

Visualizing Risk and Reward [2]

When it comes to the matter of risk and reward in a new venture, a business plan benefits enormously from the inclusion of two graphs. Perhaps graphs are the wrong word; these are really just schematic pictures that illustrate the most likely relationship between risk and reward, that is, the relationship between the opportunity and its economics. High finance they are not, but both of these pictures say more to investors than a hundred pages of charts and prose.

The next exhibit depicts the amount of money needed to launch the new venture, time to positive cash flow, and the expected magnitude of the payoff.

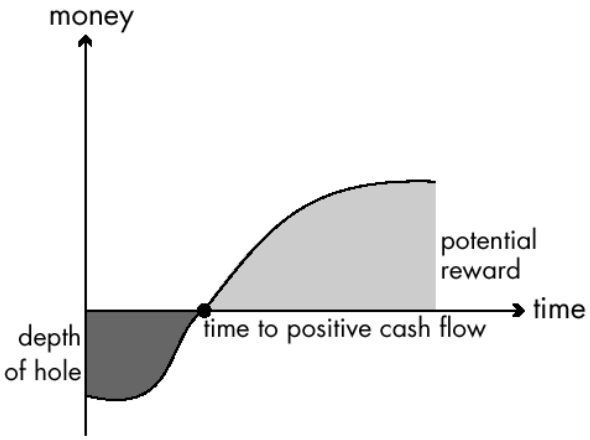


Exhibit 46 (Sahlman William A. [2])

This image helps the investor understand the depth and duration of negative cash flow, as well as the relationship between the investment and the possible return. The ideal, needless to say, is to have cash flow early and often. But the picture intrigues most investors even when the cash outflow is high and long–as long as the cash inflow is more so.

Of course, since wild-eyed optimists populate the world of new ventures, you might expect the picture to display a shallower hole and a steeper reward slope than it should. It usually does. But to be honest, even that kind of picture belongs in the business plan because it is a fair warning to investors that the new venture's team is completely out of touch with reality and should be avoided at all costs. The second exhibit complements the first.

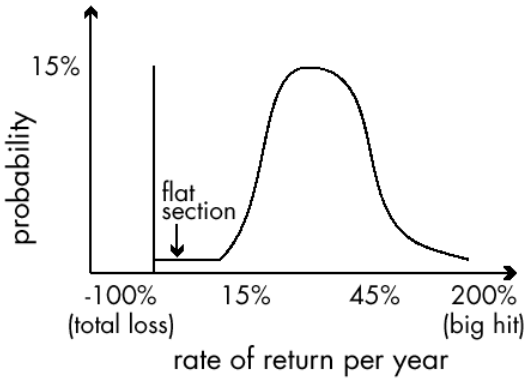


Exhibit 47 (Sahlman William A. [2])

It shows investors the range of possible returns and the likelihood of achieving them. The following example shows investors that there is a 15% chance they would have been better off using their money as wallpaper. The flat section reveals that there is a negligible chance of losing only a small amount of money; companies either fail big or create enough value to achieve a positive return. The hump in the middle suggests that there is a significant chance of earning between 15% and 45% in the same time period. And finally, there is a small chance that the initial outlay of cash will spawn a 200% internal rate of return.

Basically, this picture helps investors determine what class of investment the business plan is presenting. Is the new venture drilling for North Sea oil –highly risky with potentially big payoffs – or is it digging development wells in Texas, which happens to be less of a geological gamble and probably less lucrative, too? This image answers that kind of question. It's then up to the investors to decide how much risk they want to live with against what kind of odds.

Again, the people who write business plans might be inclined to skew the picture to make it look as if the probability of a significant return is downright huge and the possibility of loss is negligible. And, again, I would say therein lies the picture's beauty. What it claims, checked against the investor's sense of reality and experience, should serve as a simple pictorial caveat emptor.

But even with these two drawings, risk is, well, risky. In reality, there are no immutable distributions of outcomes. It is ultimately the responsibility of management to change the distribution, to increase the likelihood and consequences of success, and to decrease the likelihood and implications of problems.

CHAPTER 14

MANAGEMENT

Would you back a horse, irrespective of its jockey, or back a good jockey irrespective of his mount? Ideally, you would like a good combination of both, but, if forced to choose, many people would put money on the jockey, rather than on the horse. The same happens with investors.

Ultimately, people have priority over products and that is where the money goes. Your analysis of management and its objectives is therefore critical. You should try to provide the following: [5]

- Summary of who the owners/directors are and the degree of their control over the company
- Evidence that the assembled team has the track record, experience and expertise to achieve its goals (put detailed CV's in an appendix)
- Confirmation that the interests and competence of the team members are complementary. Projects that stand or fall on one person, or those that represent the coming together of like-minded individuals (eg a group all sharing a common technical background), ring alarm bells. If you have yet to assemble the team then describe what you are looking for and how you will achieve the right balance between team members
- Analysis of expected future staffing needs, plus an assessment of where you will find good people, how you will organize and keep them.

That's the team, but your investor will also want to know something about its objectives. Think about these questions: [5]

- What do you and your colleagues want out of the business?
- How ambitious are you for the business itself and what do you want it to become?
- How do these objectives compare with other business in the same industry?
- What are your investor's needs and objectives?

Formulating precise answers may be difficult. But where you can be specific is in spelling out the milestones you've set and by which you will judge process; eg the timetable for reaching a certain level of sales, launching a new product, recruiting the management team. Good jockeys know where they want to be at each stage in the race. Rarely do races or businesses go exactly to plan, but at least you should set out with a clear idea of where you are going, how quickly and with what anticipated reward at the finish. [5]

An important number of venture capitalists usually read the resume section first. Not because the people part of the new venture is the most important, but because without the right team, none of the other parts really matters.

One of America's leading venture capitalist -Arthur Rock- (he helped finance Fairchild Semiconductor, Teledyne, Apple, and other companies), discusses what he believes most important for entrepreneur to create successful, thriving enterprises. Some of Arthur Rock's insights, gleaned from 30 years of evaluating business proposals, include: [26]

- "Strategy is easy, but tactics are hard." The key to turning a good idea into a good business comes in day-to-day management of the company. For that reason, Rock says, he doesn't evaluate financial projections in business plans. He looks at the people – particularly the financial people- involved with any business start-up.

- "A great idea won't make it without great management." Entrepreneurial companies go through three stages of growth; by the time the company becomes a large enterprise, the founder may not be the right person to run it. The best entrepreneurs understand how vital good management is to their company and if they can't provide it themselves, they look outside and bring the right person in.

- "An entrepreneur without managerial savvy is just another promoter." There isn't one style that all entrepreneurs have. What is important, though, is to have a style –one that will lead people. The best entrepreneurs are also skilled managers who can be tough-minded with themselves and their team, can say "no," and ideally, are well versed in the technology on which the company is based

Another venture capitalist expert as William Sahlman read the resumes of the venture's team with a list of questions in mind. (Show it below)

Who Are These People, Anyway? [2]

Fourteen "Personal" Questions Every Business Plan Should Answer

-Where are the founders from?
-Where have they been educated?
-Where have they worked–and for whom?
-What have they accomplished–professionally and personally–in the past?
-What is their reputation within the business community?
-What experience do they have that is directly relevant to the opportunity they are pursuing?
-What skills, abilities, and knowledge do they have?
-How realistic are they about the venture's chances for success and the tribulations it will face?
-Who else needs to be on the team?
-Are they prepared to recruit high-quality people?
-How will they respond to adversity?
-Do they have the mettle to make the inevitable hard choices that have to be made?
-How committed are they to this venture?
-What are their motivations?

Exhibit 48 (Sahlman William A. [2])

All these questions get at the same three issues about the venture's team members: What do they know? Whom do they know? and How well are they known?

What and whom they know are matters of insight and experience. How familiar are the team members with industry players and dynamics? Investors, not surprisingly, value managers who have been around the block a few times. A business plan should candidly describe each team member's knowledge of the new venture's type of product or service; its production processes; and the market itself, from competitors to customers. It also helps to indicate whether the team members have worked together before. Not played – as in roomed together in college–but worked. [2]

Investors also look favorably on a team that is known because the real world often prefers not to deal with start-ups. They're too unpredictable. That changes, however, when people well known

to suppliers, customers, and employees run the new company. Their enterprise may be brand new, but they aren't. The surprise element of working with a start-up is somewhat ameliorated.

Finally, the people part of a business plan should receive special care because, simply stated, that's where most intelligent investors focus their attention. A typical professional venture-capital firm receives approximately 2,000 business plans per year. These plans are filled with tantalizing ideas for new products and services that will change the world and reap billions in the process – or so they say. But the fact is, most venture capitalists believe that ideas are a dime a dozen: only execution skills count. As Arthur Rock, a venture capital legend associated with the formation of such companies as Apple, Intel, and Teledyne, states, "I invest in people, not ideas." Rock also has said, "If you can find good people, if they're wrong about the product, they'll make a switch, so what good is it to understand the product that they're talking about in the first place?" [2]

Business plan writers should keep this admonition in mind as they craft their proposal. Talk about the people – exhaustively. And if there is nothing solid about their experience and abilities to herald, then the entrepreneurial team should think again about launching the venture.

SECTION 5

“Outlines”

APPENDIX A

CONFIDENTIAL DISCLOSURE AGREEMENT

This Agreement is entered into this ___ day of _____, 200__ by and between _____ with offices at _____ (hereinafter "Recipient") and _____, with offices at _____ (hereinafter "Discloser").

WHEREAS Discloser possesses certain ideas and information relating to _____ that is confidential and proprietary to Discloser (hereinafter "Confidential Information"); and

WHEREAS the Recipient is willing to receive disclosure of the Confidential Information pursuant to the terms of this Agreement for the purpose of _____;

NOW THEREFORE, in consideration for the mutual undertakings of the Discloser and the Recipient under this Agreement, the parties agree as follows:

1. **Disclosure**. Discloser agrees to disclose, and Receiver agrees to receive the Confidential Information.

2. **Confidentiality**.

> 2.1 **No Use**. Recipient agrees not to use the Confidential Information in any way, or to manufacture or test any product embodying Confidential Information, except for the purpose set forth above.
> 2.2 **No Disclosure**. Recipient agrees to use its best efforts to prevent and protect the Confidential Information, or any part thereof, from disclosure to any person other than Recipient's employees having a need for disclosure in connection with Recipient's authorized use of the Confidential Information.
> 2.3 **Protection of Secrecy**. Recipient agrees to take all steps reasonably necessary to protect the secrecy of the Confidential Information, and to prevent the Confidential Information from falling into the public domain or into the possession of unauthorized persons.

3. **Limits on Confidential Information**. Confidential Information shall not be deemed proprietary and the Recipient shall have no obligation with respect to such information where the information:

> (a) was known to Recipient prior to receiving any of the Confidential Information from Discloser;
> (b) has become publicly known through no wrongful act of Recipient;
> (c) was received by Recipient without breach of this Agreement from a third party without restriction as to the use and disclosure of the information;
> (d) was independently developed by Recipient without use of the Confidential Information; or
> (e) was ordered to be publicly released by the requirement of a government agency.

4. **Ownership of Confidential Information**. Recipient agrees that all Confidential Information shall remain the property of Discloser, and that Discloser may use such Confidential Information for any purpose without obligation to Recipient. Nothing contained herein shall be construed as granting or implying any transfer of rights to Recipient in the Confidential Information, or any patents or other intellectual property protecting or relating to the Confidential Information.

5. **Terms and Termination**. The obligations of this Agreement shall be continuing until the Confidential Information disclosed to Recipient is no longer confidential.

6. **Survival of Rights and Obligations**. This Agreement shall be binding upon, inure to the benefit of, and be enforceable by (a) Discloser, its successors, and assigns; and (b) Recipient, its successors and assigns.

IN WITNESS WHEREOF, the parties have executed this agreement effective as of the date first written above.

DISCLOSER (_____)	RECIPIENT (_____)
Signed: _____	Signed: _____
Print Name: _____	Print Name: _____
Title: _____	Title: _____
Date: _____	Date: _____

Source: Daniel A. Tysver (Beck & Tysver), BitLaw A Resource on Technology Law [Online], Available: http://www.bitlaw.com/forms/nda.html [2000, April 20]

APPENDIX B

INTELLECTUAL PROPERTY MECHANISMS

Method	Description	Term	Subject
Non-disclosure Agreement	Binds a party receiving proprietary information from disclosing that information.	Usually 3-5 years	Any confidential information disclosed during the interaction that is not public or received through other legitimate means
CRADA Protection	Binds the government from releasing research information obtained under a CRADA (Cooperative Research and Development Agreement)	Up to 5 years	Sensitive or proprietary information received or developed while working under a CRADA
Mask Works	A series of related images, however fixed or encoded, having or representing the predetermined, three-dimensional pattern of metallic, insulating, or semiconductor material present or removed from the layers of a semiconductor chip product; and in which series the relation of the images to one another is that each image has the pattern of the surface of one form of the semiconductor chip product.	.	.
Patent	Serves as a contract between the government and an inventor whereby, in exchange for the inventor's complete disclosure of the invention, the government gives the inventor the right to exclude others from making, using, or selling the invention.	Up to 20 years	Process, machine, manufacture, composition of matter, original design, certain agricultural plants
Statutory Invention Registration (SIR)	Allows federal agencies to secure protection of the government's rights in inventions without the normally required patent examination process -- serves as a publication.	N/A	Process, machine, manufacture, composition of matter, original design, certain agricultural plants

Copyright	Provides exclusive right granted by the U.S. government to the authors, composers, artists, or their assignees to copy, exhibit, distribute, or perform their works.	Life of individual plus 50 years	Products of the mind which are produced in tangible expressions, writings, paintings, movies, music, sculpture, computer software
Trade Secret	Provides the right to withhold any commercial formula, device, pattern, process, or information that affords a business person an advantage over others who do not know it.	As long as secrecy is maintained	Any commercial formula, device, pattern, process, or information that is secret, substantial, or valuable
Trademark, Trade Name, Service Mark	Establishes a unique expression to identify goods or services for commercial purposes.	As long as use is continuous	Word, name, symbol, device, numeral, picture, or any combination of them

Source: Created by the Federal Lab Consortium (FLC), “Intellectual Property Mechanisms”, National Technology Transfer Center [Online], Available: http://www.nttc.edu/technews/intprop.html [2001, may 29]

APPENDIX C

QUICKLOOK REPORT

The Quicklook Report begins with a Technology Description.

Here the important technical attributes are described so that a non-expert can understand the invention. Also described are the potential users and benefits of the technology, and problems it can solve. There are a number of important do's and don'ts to consider. All viewpoints should be noted. Negative comments are also important because they detect potential barriers to entry. Benefits must be emphasized. Use non-expert language. Bullet-form helps important parts jump out at a reader. Talk about the features of the technology, but also tell what problems it solves.

The next section of the Quicklook Report contains the Development Status of the Technology.

Describe the status whether it is a prototype, a paper idea, or a bench model. In a licensing situation, this will be especially crucial. Licensees won't be as interested in an idea as they would be in a test product. The patent status of a technology lists its intellectual property protection and ownership position. One of the most frequently cited reasons for a low ranking of commercialization potential occurs when the ownership status is not clear. Be specific about what is currently happening with a technology's development and patent status.

Next, the Quicklook Report focuses on Competing Technologies and Competitors.

These findings will be discovered through market analysis. It's important to describe similar technologies used to solve the same problem. It's also important to describe sustainable advantages of the technology over its competitor technologies and companies and their place in the market. Key questions include:

- What types of products could result from this technology?
- Is the product line narrow or broad? Is it an enabling technology?
- What is happening in the marketplace that is, is it growing?

The Potential Markets Section of the Report discusses potential partners, real users or customers (not end users). Describe the market opportunities, including size, demand over time, health of the industry, and timeliness. Information that is often subjective, yet important to estimate potential.

The next section of the Quicklook report- Barriers to Market Entry

Identifies "red flags" or potential entry barriers such as regulatory requirements, the need to set up a pilot plant, the need to prove the technology, and so on. If you are able to address and overcome barriers, the suggested method(s) should be included. These keys to entry will be important in moving a technology to its next stage.

The Quicklook report results in a recommendation. Either a "go" or a "no go."

By the time you have finished this Quicklook study, you will have more expertise than anyone else. If your answer is "go," you must boldly step forward and make your recommendation, together with an outline of the next steps that are needed to commercialize or license the technology. These steps may include filing a patent, performing tests, building a prototype, and so on.

Because groups are assessing more than one technology, it may be advisable to prepare a commercial potential rating. Using some type of ranking system to identify factors, weights, and comparative scores will help outline what's important and how each technology meets the set criteria. NASA commercialization centers use four factors:

- Market potential
- Market maturity
- Technology development
- and competitors/patents

Any rating system should effectively compare how technologies meet the set standards or required attributes.

Quicklook Outline

- Technology Description
- Potential Benefits
- Potential Commercial Markets
- Development Status
- Competition
- Potential Barriers
- Conclusions
- Commercial Potential Rating (an example is show next)

Factor	Weight	Score
Market Potential	25%	2
Market Maturity	15%	3
Technology Development	40%	2
Competitors/Patents	20%	1
Total	100%	1.95

Notes:

Each factor would be ranked depending of the primary aim of the technology and specifying a weight according to said aim.

To score each factor you need to be honest.

- Interview Summaries

Final Suggestions

Final suggestions apply both to the Quicklook and to the In-Depth assessment. Report what you see as the truth, not what you think someone wants to hear. Use your best judgment as you gather and analyze facts. Give complete information but avoid unnecessary details that are distracting. Report all the facts, especially those that are conflicting. Use your best judgment to determine the most important benefits and the most reliable information. Avoid biases by using teams, listening to dissenting voices, and overcoming faulty perceptions with thorough and thoughtful research, insight and judgment. Analyze carefully rather than just reporting the facts.

Trust your instincts!!!!

APPENDIX D

IN-DEPTH REPORT

Technology Ownership

Technology ownership is a key-screening factor. To assess intellectual property, you will need to find out who owns the technology. If there is a dispute, which is not uncommon, then it may not be worth the resources to continue the assessment. Appropriate methods of IP protection should be identified, along with patent and literature searches to find competitors and rivals. Any ownership issues that may impact commercialization must be identified. For example, if there is a patent issued on the technology, and if the technology is licensed for a particular field of use, then the assessment work should address other areas of use.

The Quicklook and In-Depth assessments differ the most in the identification of potential markets.

The In- Depth is much broader and deeper in scope - it determines the research methodology, identifies problems the technology will solve, and identifies potential products and services, buyers and licensees, and key benefits. More intensive test data is needed, in addition to the assessment of the health and future of the target industry. This is the step where the technology meets the market. Where potential products and services are envisioned as the product moves from the imagining to the incubating sub process.

Potential Markets

It is also important at this stage to determine as much as possible about the general or specific potential markets. This includes an assessment of market size as a function of time, and competing companies and their position in the marketplace. Also included are assessments of potential worst-case scenarios, such as competitor reactions, existing and potential regulations, possible internal dangers, analysis of keys and barriers to entry, and finally the development of a marketing strategy.

Human factors dramatically impact all commercialization efforts. We are moving a technology from its source of development to its destination of use. Thus, we will encounter both enabling and disabling human and organizational factors. To determine how a technology will be commercialized, we must consider several options - will it be commercialized from within, as a spinout, or as a license? Many R&D projects are "shelved" because there is no process champion. Thus we must identify positive and negative champions, those that will enable and those that will disable the commercialization efforts.

Finally, a careful assessment of management and organizational cultures is needed to assess their impact on successful commercialization. It remains important to understand the stakeholders, what their needs are, and how to maintain their support.

Technology Transfer Context

In this step, we define the technology transfer context more fully.

We will explore more intensely all types of barriers and facilitators to collaboration. International barriers and facilitators might include legal barriers, standards variations, cultural variations, tariff and export restrictions, new technology incentives, or business structure implications. We also assess demographics or ecological problems that may develop so the full impact is addressed in the commercialization strategy. Finally, government-supported research for partners or competitors must be considered.

External programs that support commercialization must be assessed, followed by a determination of direct and indirect government policies that may impact commercialization. The researcher is responsible for recommending collaborators, those who can add value to the commercialization

process and for defining the metrics of success. How it can be achieved in clear and concise projections.

The most critical step of the In-Depth assessment is the commercialization recommendation. This recommendation is the key deliverable of the study -it tells us what to do next with the technology. This step involves analyzing all of the information that has been generated and assembled, including the barriers to market success and the keys to overcoming those barriers. It also involves estimating resources required for commercialization, and making the "go" or "no go" decision.

After this decision is made, a commercialization strategy that will enable the project to go forward successfully must be defined.

Final Suggestions

Final suggestions apply both to the Quicklook and to the In-Depth assessment. Report what you see as the truth, not what you think someone wants to hear. Use your best judgment as you gather and analyze facts. Give complete information but avoid unnecessary details that are distracting. Report all the facts, especially those that are conflicting. Use your best judgment to determine the most important benefits and the most reliable information. Avoid biases by using teams, listening to dissenting voices, and overcoming faulty perceptions with thorough and thoughtful research, insight and judgment. Analyze carefully rather than just reporting the facts. Trust your instincts.

In-Depth Report Outline

Overview

Your will assess a technology for its commercial value and develop marketing strategies for the technology.

The steps of the technology assessment process are:

1. Define the scope of the assessment.
2. Describe the technology ("subject technology").
3. Assess intellectual property positions of the technology.
4. Identify potential markets for the subject technology.
5. Assess the human and organizational factors that will affect the commercialization process.
6. Develop technology transfer recommendations (a "model") for the potential collaborative partnerships.
7. Develop commercialization recommendations for the subject technology

The Process

1. Define the scope of the assessment.

    - Draw a conclusion and make a recommendation on the commercial value of the technology that you are assessing. You are welcome to define the scope of the assessment in terms of industries, applications within industries, geographic areas, etc. Make sure in this step to identify constraints that may apply to this assessment.

2. Describe the technology ("subject technology").

Few products or processes involve single technologies. The subject technology may actually consist of several related technologies. Often existing technologies are integrated, or new capabilities are integrated with known technologies. Ensure that your description addresses this factor.

This step includes the following activities:

- Determine the important technical attributes of the technology.
- Determine the benefits of the technology.
- Obtain and document opinions of technical and commercial experts in the field.
- Determine the problems that the technology can solve, or opportunities that the technology can address, keeping in mind that these solutions will need to be achieved at a market-acceptable cost.
- Identify opportunities that the technology facilitates.
- Identify competing or alternative technologies (technologies that currently are being used to solve the problem(s) addressed by the subject technology and the cost at which these solutions are being achieved).
- Identify who uses similar technologies.
- Assess whether or not the subject technology has a demonstrable and sustainable advantage over the competitive technologies in the marketplace.
- Assess potential unwanted effects of the technology.

3. Assess intellectual property positions of the technology. This step includes the following activities.

- Determine who owns the subject technology.
- Assess appropriate methods of intellectual property protection.
- Perform patent and literature searches to find competitors and rivals.
- Identify ownership issues that may impact commercialization.

4. Identify potential markets for the subject technology. This step includes the following activities:

- Determine the methodology of your market research.
- Identify the problem(s) the technology could solve for potential buyers, or what need the technology could address.
- Determine what products or services could result from the subject technology.
- Identify potential buyers and licensees.
- Identify key benefits sought by buyers.
- Determine the test data needed as defined by the marketplace.
- Assess the health and the future of target industries that constitute the market for the subject technology, or identify new industries that might develop.
- Assess the potential market size as a function of time.
- Determine competing companies, as well as other (substitute) products/services that serve the same need, and whether they dominate the marketplace.
- Recognize potential worst-case scenarios, competitor reaction, regulation and internal dangers.
- Analyze the keys and barriers to entry.
- If possible, assess the technology's potential value. There may not be enough information on manufacturing or product introduction costs to do a true Return on Investment calculation. However, scenarios that examine potential gross returns from licensing fees or gross product sales can be illustrative of the level of financial investment allowable to bring the technology to market.
- Develop marketing launch strategies for the products or services.

5. Assess the human and organizational factors that will affect the commercialization process. This step includes the following activities:

- Determine how the technology will be commercialized -- the context of the subject technology and subsequent commercialization process. Will the commercialization process occur from within a company (intrapreneurial venture) or will the process be performed through a start-up via spin-off or license (entrepreneurial venture)?
- Identify positive and negative champions ("passion" and credibility factors for the individuals and organizations involved with the technology).
- Assess management issues that may affect commercialization.

6. Develop technology transfer recommendations (a "model") for the potential collaborative partnerships. This step includes the following activities:

- Identify the context for the transfer, including national and global issues.
- Specify barriers and facilitators to achieving successful collaborations leading to efficient and effective technology transfer.
- Assess cultural traditions, demographics or ecological problems that may affect commercialization.
- Analyze government-supported research for partners or competitors. For example, determine who is funding the research, who is performing the research, who is commercializing the research, and what is the potential impact of these factors on the commercialization of the subject technology.
- Determine external programs that may support commercialization. For example, determine the government policies and programs that support the commercialization of government-funded technology and determine how you could use those policies and programs to gain access/rights related to your technology.
- Determine direct and indirect government policies that affect your international commercialization efforts, e.g., tariffs, joint venture research, financing of critical technologies, taxes, environmental regulations.
- Recommend collaborators for the technology transfer.
- Define metrics of success.

7. Develop commercialization recommendations about the subject technology. This step involves the following activities:

- Analyze the information obtained about the technology, including comments from industry.
- Outline barriers to market success.
- Outline keys to overcome barriers.
- Estimate capital and resources required.
- Make the final "go" or "no go" decision and develop next steps. (The "go" or "no go" evaluation will be ongoing throughout the assessment process).

    - If a "go" decision is made, outline the next steps to be taken to commercialize the technology, and estimate the capital and other resources required to perform these steps.
    - If a "no go" decision is made, formulate recommendations regarding the next steps to be taken with this technology.

8. Write the report.

   The report is designed to persuade parties involved to follow through with "next steps" proposed and to provide a guide for the technologist/sponsor relative to next steps.

Charts and other graphical representations of information are encouraged. Bulleted points that may be expanded upon in additional paragraphs will help to highlight specific issues and facts.

The report should have the following format. Each major section should address the issues outlined previously.

I. Cover Page with Technology Title
II. Table of contents, list of figures & tables
III. Executive Summary --Maximum of four (2) pages. Highlights the salient decision making points from each of the major topic areas in the report. It should stand on its own in support of the recommendation of the report.
IV. Scope of the Assessment
V. Description of the Technology
VI. Description of Ownership and Intellectual Property Issues
VII. Market Potential
VIII. Description of Key Human and Organizational Factors
IX. Technology Transfer Model
X. Conclusions Regarding Commercialization Potential and Recommendations (next steps; etc.)
XI. Documentation of Sources

APPENDIX E

TOOLS TO UNDERSTANDING CUSTOMERS

As people think about buying a particular product, service, or even an idea, they often think about the features, attributes, and benefits associated with it.

There is a difference between a feature and a benefit.

- A feature refers to a characteristic, often a physical characteristic of the offering.
- The benefit refers to the economic, technical, service, social, and/or emotional benefits, or positive outcomes, that the customer receives/experiences as a consequence.

The features of a computer could be chip processing speeds or memory capacity. The benefits of using a computer that features a high-speed chip include greater productivity, praise from a boss or co-worker, or money savings.

There's number of different definitions for attributes, but they usually boil down to characteristics of the offering, i.e., very similar to features. Sometimes attributes are referred to as concrete, measurable features. Often attributes are referred to as characteristics of an idea, product, or service that are of interest to the customer. Plan on using this second definition of attributes as we move forward.

Next are presented some tools to understanding customers:

- For gaining an understanding of customers

  Fishbein's Multi-attribute Model
  Conjoint Analysis

- For converting understanding into action

  House of Quality

Fishbein's Multi-attribute Model

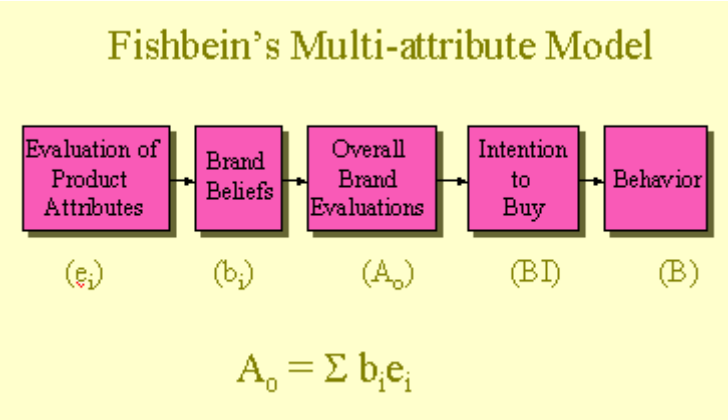


Exhibit 49
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

One of the basic concepts of buyer behavior is related to how people actually implement that "Evaluation" stage in the buying decision process. Fishbein's Multi-attribute Model is one of the classic theories that look at this problem.

This theory suggests that a person's attitude ("A" above) about something (a product, for example), is formed by taking two things into account:

1) his/her evaluation of how important specific attributes are ("e" above), and
2) his/her beliefs about how well different brands (or suppliers) address those attributes ("b" above).

The theory suggests that an individual's attitude then determines his/her intention to buy a particular product. It goes on to suggest that an intention to buy is necessary before someone actually purchases a product. (There has been continued research on this concept as well – and if you've ever bought something on impulse, you're aware that this is not always true. There has also been continued research that demonstrates that lots of things can have an impact on whether an intention to buy actually turns into a purchase. Many social factors come into play and have an effect on an individual's actual behavior, i.e., purchase.)

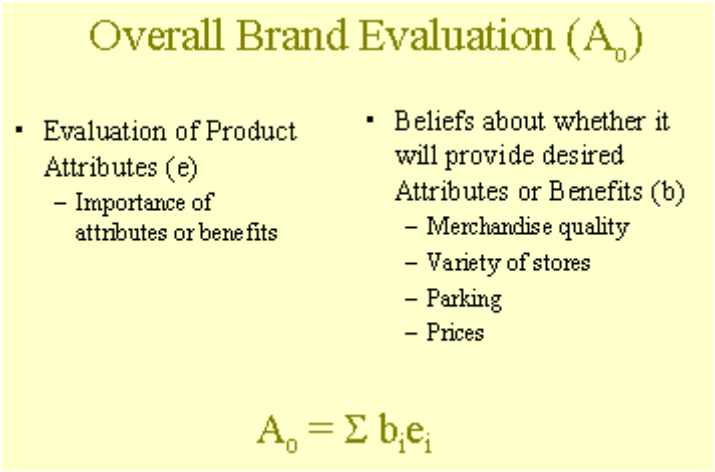


Exhibit 50
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

Conjoint Analysis

Conjoint analysis is a method to determine how important various attributes are to customers. It also provides one rough way to determine a potential share of market.

In essence, the process includes:

1) Talking with customers to determine what the key, or salient attributes are when you are discussing a particular product.
2) Using that information, or those attributes, to develop "products" (really descriptions of products) with various combinations of those attributes
3) Asking customers to sort through the various combinations and identify their preferences
4) Using statistical analysis to determine the "utilities" of the various attributes to the customers
5) Taking the analysis further to determine attribute importance, and
6) Determining a share of preference.

In Sum - a method to:

- Determine importance of attributes
- Determine trade-off among attributes
- Estimate share of preference and, from there, share of market for a new product/service

House of Quality

A real difficulty in commercializing technology and in developing products is to incorporate design features that customers want while at the same time designing a product that is sound from an engineering standpoint. Inevitably, the "marketers" will ask for a series of attributes and the "engineers" will say they can or cannot be included. The communication between the two groups is very often inadequate, leading to frustration on both sides.

The House of Quality is a basic design tool of a management approach called Quality Function Deployment (QFD). QFD is basically a set of planning and communication processes that focuses and coordinates skills within an organization to design, manufacture, and market goods.

The central objective of the House of Quality is to design products to reflect customers' desires and tastes, starting from the moment the product are first conceived. As a result, a House of Quality (HOQ) is developed through close communication and cooperation between marketing people, design engineers, and manufacturing staff.

It is time consuming and frustrating to complete a HOQ. It requires engineers, marketers and manufacturing personnel to work together – closely, and on a regular basis. At the same time, it has been shown to dramatically cut startup and pre-production costs (by over 60% in one study).

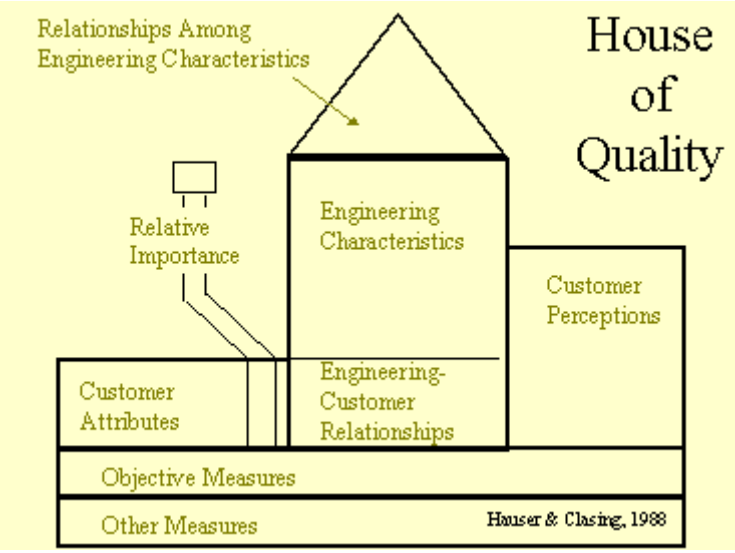


Exhibit 51
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

The first step in building a House of Quality is to conduct customer research. During this phase the customer may be asked questions similar to those shown in the Fishbein Multi-Attribute model.

The objective is to identify those attributes that are most important to customers, and then to determine how "our product" stacks up vs. the competition on those same attributes. These attributes are phrased in the same terms used by customers as they described their desired products and characteristics. This preserves, without anyone's interpretation, what the customer actually wanted. A typical HOQ would include 30-100 customer attributes. Next, based on the experience of the design team, or through research, the attributes are assigned values that indicate their relative importance.
The next step is to fold in the information about customer perceptions, or beliefs, about your product vs. competitors' products. The method here is a form of "perceptual map.

The next step is to indicate the engineering characteristics that could affect one or more of the customer attributes. The objective is to describe the attributes in measurable terms and to directly affect customer perceptions. This step permits gaining an understanding of how engineering decisions could affect customer perceptions. This discussion may lead in to productive work on deciding among trade-offs. It is important to incorporate measurable units when discussing engineering characteristics.

Another step is to examine the relationships between the various engineering characteristics that were identified. Clearly, there will be cases where the engineering characteristics conflict. One of the real benefits of completing a House of Quality is to uncover and discuss, among all stakeholders, what the trade-offs are.

Finally, a series of additional measures, such as technical difficulty, importance, estimated cost, and target ranges are included along the bottom for each of the engineering characteristics.

This first "House" would be considered to be the Engineering Characteristics house. That is, it reflects customer attributes in terms of engineering characteristics. Further "houses" could be developed to convert engineering characteristics into parts characteristics, parts characteristics into key process operations, and so on. The key objective here is to provide you with an overview of the House of Quality as a tool to stimulate communications regarding customer characteristics among marketing, engineering, and manufacturing personnel.

House of Quality in sum:

- Structured method to translate customer desires into engineering specifications
- Examines interactions among engineering characteristics and their impact on customer desires
- Examines, in a concrete, measurable way, differences vs. competitors and the importance of these differences to customers.

The discipline of market research – or any discipline that studies human behavior, for that matter – is not an exact science. People are involved. And people are notorious for saying one thing and doing another. The purpose of research is to reduce uncertainty and risk. It cannot eliminate it. Therefore, you may at times feel frustrated that they don't provide you with hard and fast answers about what you should do. Rather it helps you to examine, in a disciplined way, possible outcomes of different approaches. Research is used to guide judgment; it doesn't provide "the answers"

<u>But – nothing can ever replace judgment.</u> A person still has to examine and interpret the results. A case to follow a particular course of action should be built on as many defendable assumptions as possible. Note that they are still assumptions, but the operative word is defendable.

APPENDIX F

PORTER'S FIVE FORCES

One way to analyze an industry is through Porter's Five Forces (Porter, 1980).

These five forces provide a structure through which to examine the health and status of the industry.

- Threat of intense segment rivalry
- Threat of new entrants
- Threat of substitute products
- Threat of buyers' growing bargaining power
- Threat of suppliers' growing bargaining power

Briefly, Porter suggests that there are five forces that influence the attractiveness and profitability of an industry.

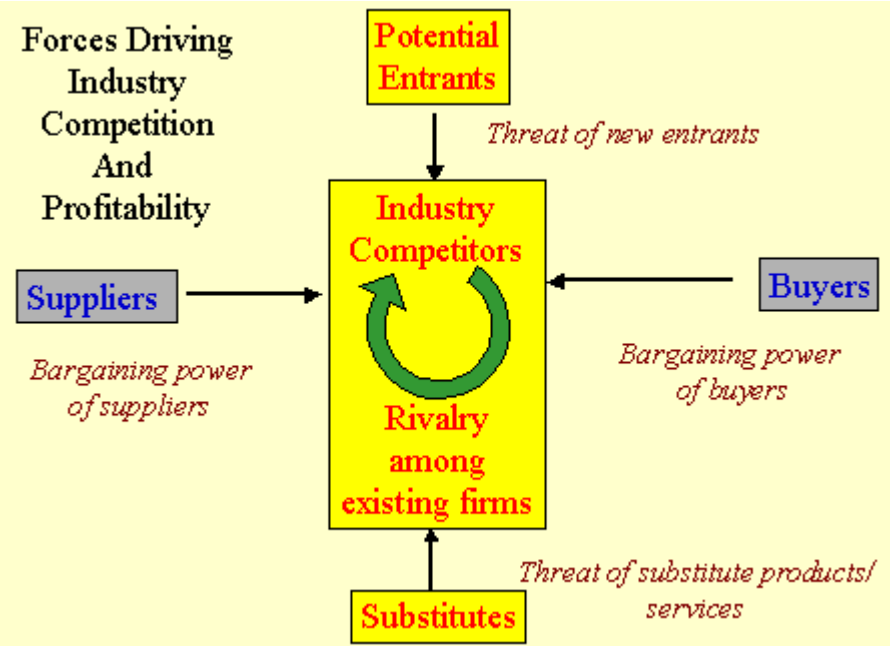


Exhibit 52
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

First, the existing level of rivalry among the firms (the center rectangle called Industry Competitors in the figure) is a major force.

Characteristics of an industry that affect the level of rivalry between existing firms include:

Numerous or Equally Balanced Competitors: When there are lots of competitors, there are always a few mavericks, companies that feel they can slip in a change without getting noticed. When they're balanced, and all have good resources, they may be prone to compete, and have the resources to do it. If the industry is unbalanced, that is, if 1-2 firms dominate it, the leaders can play "impose" discipline.

Lack of Differentiation or Switching Costs: When the product/service provided by the industry is perceived as a commodity, choice is largely based on price and services. This leads to pressures for intense price and service competition. Product differentiation, on the other hand, creates

layers of insulation against competitive warfare because buyers have preferences and loyalties to particular sellers.

Capacity Augmented in Large Increments: Rivalry increases if economies of scale dictate that capacity must be added in large increments. This leads to recurring periods of overcapacity and price-cutting.

Slow Industry Growth: If there is slow growth in the industry, clearly you will see competition among firms seeking expansion of market share. In a rapidly growing industry, on the other hand, everyone can improve results just by keeping up.

High Fixed Costs: High fixed costs in any industry create pressure to fill capacity. As capacity is filled, the market is over-supplied, leading to greater price pressure and lower levels of profitability.

Diverse Competitors: Another factor contributing to the level of rivalry among competitors in an industry is the level of diversity in terms of strategies, origins, personalities, and relationships to parent companies. This diversity makes it difficult to read each other's intentions accurately and agree on a set of "rules of the game" for the industry. Foreign competitors add considerable diversity.

High Strategic Stakes: An industry would be more volatile if a number of firms have high stakes in achieving success there. For example, a diversified firm may place great importance on achieving success in a particular industry in order to further its overall corporate strategy. For foreign firms it gets even stronger if they involve potential willingness to sacrifice profitability.

High Exit Barriers: A final factor that contributes to the degree of rivalry within an industry relates to the economic, strategic, and emotional factors that keep companies in businesses even with low/negative returns on investment. Examples include companies with specialized assets (low liquidation values); labor agreements, maintaining capabilities for spare parts; strategic interrelationships (divisions or partnerships); emotional barriers such as loyalty to employees, fear for one's own career, pride; governmental/social restrictions due to possible job loss and regional economic effects.

While the existing level of rivalry within an industry is a signal of its attractiveness, there are four other factors that constantly come into play and serve to exacerbate or reduce it. These include the barriers to entry for potential entrants, the presence of substitute products and services, the power of buyers and the power of suppliers.

The second force is the potential entrants in the top yellow box above relates to barriers to entry. How difficult is it for a new competitor to enter this industry? An industry that has few barriers to entry, such as the restaurant industry, or, more recently, the "dot.com" industry, sees new entrants regularly pouring in. The more competitors there are, the more intense will become the competition.

According to Porter, there are 8 factors that represent barriers to entry.

Economies of Scale: If an industry requires economies of scale (i.e., it requires unit costs to decline as volume increases) to be profitable, that represents a significant barrier to entry. This deters entry by forcing potential entrants to come in at large scale and risk strong reaction from existing firms, or come in at a small scale and accept a cost disadvantage.

Product Differentiation: If established firms have brand identification and customer loyalties stemming from past advertising, customer service, product differences, or first to market, this represents a barrier for potential entrants. High levels of differentiation force entrants to spend heavily to overcome existing customer loyalties.

Capital Requirements: If an industry requires large financial resources to compete – e.g., unrecoverable up-front advertising or R&D another barrier to entry has been erected.

Switching Costs: Another barrier is present if the product/service category requires high one-time costs incurred by switching from one supplier's product to another. Switching costs include employee retraining costs, product redesign, and psychic costs, among others. If switching costs are high, new entrants must offer significant improvements in cost or performance to get a buyer to switch.

Access to Distribution Channels: Established firms are already in the distribution channels. Therefore, potential new entrants have to convince the channels to accept the product through price breaks, cooperative advertising allowances, stocking allowances, etc. Some western companies are encountering this barrier in Japan.

Experience Effects: Yet another barrier is present if the industry requires high learning-related labor costs at start-up. While these costs get better with experience, they can represent a significant barrier for potential new entrants.

Government Policy: Another set of barriers is related to government policy. These include licensing requirements, limits on access to raw materials (e.g., mountains on which to build ski areas; coal lands). Highly regulated industries such as trucking, railroads, and liquor retailing face constant profit pressures because of this barrier to entry. Similarly, pollution control requirements can increase capital needed for entry.

Expected Retaliation: A final entry-related barrier is related to the history of the competitors in the industry. Do they historically retaliate vigorously? Slow industry growth limits the ability of an industry to absorb a new firm and incumbents may fight. Along the same lines is the concept of "Entry-deterring price" – if the price goes above a certain level, entrants may find entry to be worthwhile. Incumbent firms may choose to stay below this price. This gives rise to the concept of Brinksmanship, or convincing potential competitors that any market entry effort will be countered with vigorous and unpleasant responses.

The third force is pressure from substitute products, affects the attractiveness of the industry in another way. In essence, these represent products or services that can perform the same function as those in the industry. These substitute products place a ceiling on the prices that could be charged for products in the industry. Once again, this downward price pressure reduces the profitability, and therefore attractiveness, of an industry.

Finally the two other forces are customer (buyers) and supplier whose power can greatly affect the attractiveness of an industry. In an industry where customers are very powerful, profit pressure could make the industry less attractive.

There is another way to view an industry using Porter's Five Forces. This is as an industry that would be attractive to do business with (from a supplier's point of view). That is as a potential customer segment. So as you write the "customer" section of your marketing plan, you may want to revisit these concepts.

A given technology could yield a variety of products that could be of value to organizations in many different industries. As you move to develop and commercialize products, one of the things to think about is the long-term opportunity that these "customer industries" could represent. As you think about investing time, money, and other resources in developing a particular product, answer this question. Do you want to be developing products for customers who will themselves be growing and healthy? Or would you care? If you only had a limited amount of money to spend (in product development, or in marketing development), wouldn't you focus on finding high growth, healthy, customers – customers who you know will be there over the long haul?

APPENDIX G

MARKETING MIX (4 P's)

Product Strategy

Product strategy relates to a variety of concepts centered on the product or service that you are providing for the customer. It incorporates key concepts such as platform strategies and product attributes, features, and benefits, as well as selecting brand names and building brand equity, also product strategy refers to all of those elements that are designed into the product / service / idea itself.

Clearly the most obvious element of product strategy relates to the attributes and features that you decide to design into a new product. Other decisions that must be made as a part of product strategy include the level of quality you intend to maintain, the number of options you intend to offer, and, similarly, the styles and sizes.

What people often don't realize about product strategy, however, is that the "whole product" (as opposed to the device itself) incorporates such concepts as service, warranties, and returns policies. For example, if you have a product identical to a competitor's, but superior service levels, warranties, or returns policies, you have a point of differentiation. Packaging concepts also fall into the whole area of product strategy. Along similar lines, disposal of packaging has also become more and more important as a product feature.

Visually, the "whole product" concept works something like this.

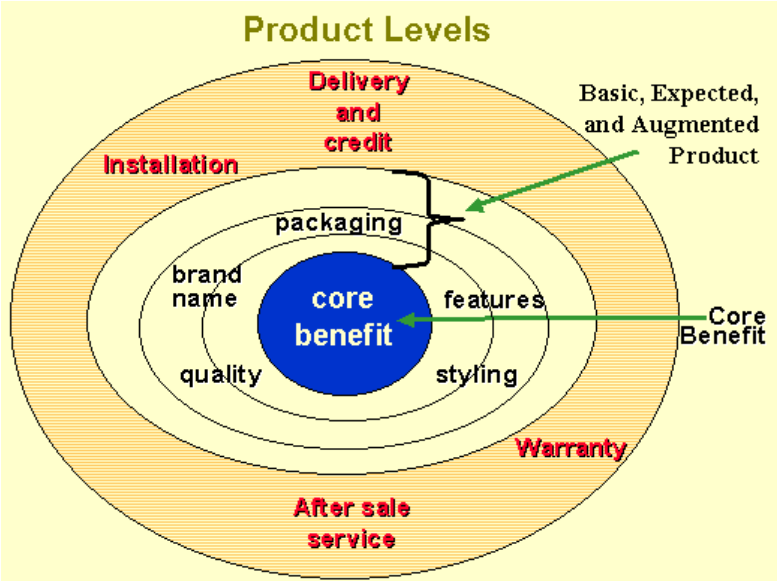


Exhibit 53
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

At the center of a product is the benefit that it provides to the customer. This is an important thought to keep in mind during new product development. That is, what is the fundamental benefit that the customer is really buying? What core/basic need is being addressed? Beyond that point you find the Basic Product. This would be the no frills device. Similarly, close to this level you would find the Expected Product. This incorporates a set of attributes and conditions that buyers normally expect and agree to when they purchase this product.

A common problem in high-tech consumer products is that engineers seek to design the best possible product based on the technology that they have available – while the consumer may not be interested in (or willing to pay for) the extra bells and whistles.

The next level incorporates the Augmented Product; at this point the product meets the customers' desires beyond their expectations. This costs money and you must constantly ask yourself if your target customer will be willing to pay for it. Each time the features increase, you will shortly move to a new level of expected product as the customers become accustomed to seeing it. Finally, as the number of features increase, it becomes more and more possible for a new competitor to offer a stripped down product at much lower prices.

The final step in the "whole product" concept incorporates additional elements of the offering such as delivery and credit, warranties, installation, and after-sale service.

Another set of decisions in product strategy deals with the Product Mix. This incorporates two concepts:

- Product Line Width, or how many different product lines the company has, and
- Product Line Length, or the number of items in product mix

You could see the importance of incorporating customer needs and desires into the design process (appendix E, the development of the House of Quality). The theory of Diffusion of Innovations also provides insight to assist in product design. That is, it helps you to determine the types of elements into the product that would encourage its rapid acceptance by the target.

Theory of Diffusion of Innovations

This theory has been used in a variety of contexts in order to predict how long it would take for a particular innovation to spread across a particular population of people.

The first step here is to work from a common definition of innovation. In reality, it is any good, service, or idea that someone perceives as innovative. Innovation is in the eye of the beholder.

The next thing to be aware of is that people go through a process when they are adopting anything.

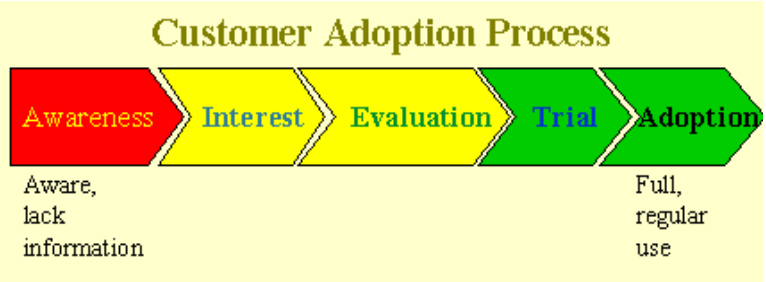


Exhibit 54
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

- First, they must become aware that it even exists.
- Second, they must hear or see something about it that attracts their interest that makes them wish to learn more.
- Third, they will think through, or evaluate, the information they have.
- Fourth, if the evaluation was positive, they may actually try the product (or idea, or service.)

- Fifth, if they liked what they tried, and then reach the point of full, regular use, they are considered to have adopted the innovation.

Another outcome of this theory was to learn what factors influenced the adoption process.

1. People Differ in their Readiness to try New Products.

   Innovators: Those who are quick to try anything new and are willing to put up with the pain that sometimes goes with it are called Innovators.

   Early Adopters: Those who are also fairly quick to try something new. They adopt new ideas early, but carefully.

   Early Majority: These people tend to be more deliberate. They will adopt a new idea before the average person but are rarely the leaders. They tend to be very practical. If the technology will solve a problem for them, and it has been tested out and has well-established references, they will adopt.

   Late Majority: These people tend to be skeptics. They will adopt an innovation only after a majority of people has tried it.

   Laggards: These people tend to be tradition-bound and suspicious of any change. They have no desire to have anything to do with any new technology.

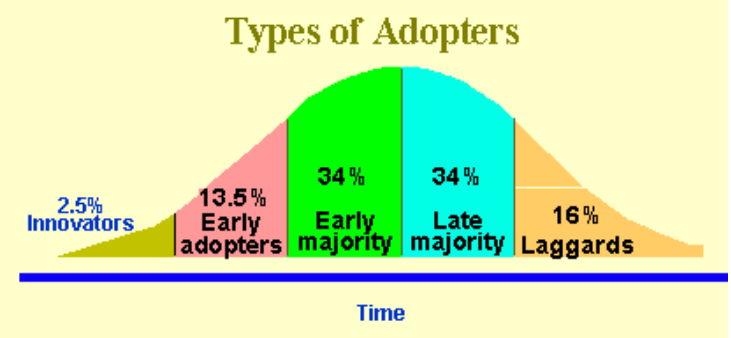


Exhibit 55
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

2. Innovations "travel" through personal influence, especially in the evaluation stage.

   As a result of this, it is important from a marketing standpoint to identify people who are considered to be "Opinion Leaders" in their particular communities or industries and provide them with incentives to "spread the word" about your product. This "word-of-mouth" process is especially important in the high-tech industry, and we'll be talking about it a little more in the Communication/ Promotion parts of the course.

3. The characteristics of the product/service/idea itself also have an effect on its rate of adoption

   The descriptions of these characteristics are listed below.

   Complexity (Learning): The degree to which the innovation is easy or difficult to understand, or learn to use.

Divisibility (Trialability): This relates to whether or not the innovation can be tried on a limited basis. In other words, how risky is it to try?

Relative Advantage (Advantage): The degree to which the innovation appears superior to existing solutions.
Compatibility (Compatability): The degree to which the innovation matches the values/experiences of the target group.

Communicability (Observability): The degree to which others easily observe the benefits of using it.

Branding is a major issue in product strategy. It is human nature to be more comfortable, and therefore more likely to buy, a product with a brand name associated with value. The selection of a brand name, and the development and care of brand equity can literally make or break a business or product. Branding is more than a name and have a deep set of meanings:

- Attributes, What attributes come to mind?
- Benefits, What benefits come to mind?
- Values, What values?
- Culture, What culture?
- Personality, What personality?
- User, What does user look like?

The competitive advantages of brand are:

- Higher awareness - can advertise less, or focus on building preference
- Trade leverage - Strong brands can virtually demand stores carry item
- Higher perceived quality, therefore higher price
- High credibility, therefore launch other products w/brand name

There are different brand names strategies:

Individual Brand Names

Advantages: a) doesn't tie reputation to individual products; can produce lower quality products w/o diluting brand name, b) allows search for best brand name for each product; new name = new excitement.

Blanket Family Name

Advantages: a) development cost less because no need for "name" research or heavy advertising to create brand-name recognition; b) sales of new product will be strong is mfg. name is good.

Separate Family Names (for very different products)

A good brand name needs to:

- Suggest something about product's benefits
- Suggest product qualities
- Easy to pronounce, recognize, remember
- Should be distinctive
- Should not carry poor meanings in other languages or countries

But how we can create brand loyalty and what is brand loyalty, well think of brand loyalty as a spectrum:

Awareness: Top of Mind, Unaided, and Aided
Acceptance: Product is accepted; will use; may buy consistently out of habit (this is not loyalty)
Preference: Prefer the product/service; will purchase if available; will purchase a substitute if not available.
Loyalty: Will purchase only that brand of product/service; will go to another location to get it, or wait, if not available.

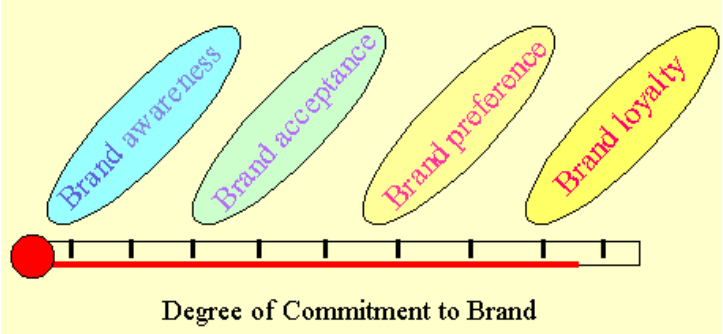


Exhibit 56
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

Brand Loyalty:

- Favorable attitude toward a brand resulting in consistent purchase of the brand over time
- Result of consumers learning that one brand can satisfy their needs
- Highest when consumers
  - -Are personally involved with the brand
  - -Find the purchase risky

Brand Equity:

The brand equity is the degree of power/value a brand has in market and is the major asset of the "Marketing Company."

The brand equity is related to:

- Number of customers who:
  - –Are satisfied; would incur switching costs
  - –Value the brand; see as friend
  - –Are devoted to the brand
- Degree of brand name recognition
- Perceived brand quality
- Strong mental and emotional associations
- Other assets (patents, trademarks, etc.)

Price Strategy

One of the greatest challenges in commercializing a new product comes at the point when selling price must be determined. Often, prices on new high- technology products are set based on

either cost-plus profit margin or breakeven. Unfortunately, this rarely leads to optimum levels of profitability.

A variety of factors must be taken into account. What is the value the product provides to the customer? How price sensitive is the customer? What are the prices and strategies of competitive and substitute products? What are the company's overall objectives and cost structures? Moreover, since price is also a way to communicate information about the product, it is critical the pricing strategy reflect the previously determined segmentation, targeting, and positioning strategies. In other words, does the selling price match the pre-determined marketing strategy?

Pricing strategy refers to all of those decisions related to setting and maintaining prices for products/services/ideas.

Price is an especially important part of the marketing mix because it is the only cash generating option. All other strategies, promotion, product design, and place, are cash expending.

To find the correct price strategy is think in the first / central strategy question sited below and second work out the details.

-Higher than the competition?
Pros: Communicate premium positioning; higher profits
Cons: Encourages competitors to enter the field if very profitable.

-Equal to the competition?
Pros: Higher unit sales; keep competition from entering
Cons: Lower profits

-Lower than the competition?
Pros: Competitors don't have edge
Cons: Lack of differentiation

It's important to clarify two terms:

Cost = what you/distributor/retailer paid for something
Price = what you/distributor/retailer sell something for

There are six steps to go through to set a price for a product. Before stepping into the price setting process, it is important to remember the overall goal. It is to achieve a commanding position in the market segment served. The objective is not to compete in every market segment the product might conceivably fit.

"Products are frequently under-priced because companies try to satisfy the needs of too many markets. Ironically, most incremental markets end up buying little anyway."

Six-Step Process for Setting Prices

1. Select the Pricing Objective

The first step is to determine which pricing objective you wish to have. Do you want to maximize current profit? Do you want to maximize market skimming, or do you want to maximize penetration? Do you want to hold the product/quality leadership position?

Maximize Current Profit: If your objective is to maximize current profit, you will have to be able to estimate both demand and costs. That is, you can't choose a price based on the maximum profit level possible unless you know what demand and costs will be. In this case, you would then choose a price for maximum current profit, cash flow, or ROI.

Clearly, this objective, while attractive, has some inherent problems. First, it assumes you know what demand and costs will be. It also assumes that you understand price elasticity/sensitivity well enough to estimate how much you will sell under different pricing scenarios. Finally, it may invite reactions from competition as well as from government and customer groups.

Maximize Market Skimming: With market skimming, you set very high price, skimming off top layer of those customers who want it enough to pay a high price. This is a very common strategy in the high tech world. It works well if you have a sufficient market size with high demand, regardless of price, if your production costs are workable with low volume, and if your are trying to convey an image of a superior product. The downside is that it tends to attract competition.

Maximize Sales Growth, or Market Penetration: With this strategy, you set the lowest price possible price in order to gain as much market share as possible in the short term. It works well if the market is price sensitive, if your production/distribution costs fall with added production experience, and if the low price discourages actual or potential competition.

Product-Quality Leadership: If your objective is to be Product-Quality leader, and have a product with very high quality, you would set the price to reflect that.

2. Determine Customer Demand

In the Marketing Situation Analysis (market potential and demand) section we discussed various approaches to determining market potential

Estimating demand requires taking a realistic look at this potential to determine how much of it you believe you could capture.

- Analyze past prices, sales, and other factors of similar products if available.
- Conduct price experiments
- Ask customers
- Review factors affecting price elasticity and sensitivity

As you are estimating demand, it is also important to address the issue of price sensitivity. Higher levels of price sensitivity will result in a lower estimate of demand if you are intending to charge a high price.

Customers are less price sensitive if:

- The product is highly innovative
- The product is more distinctive than competition
- There are few substitutes
- Product is used in conjunction with assets previously bought
- Product is assumed to have high quality

3. Estimate Costs

The third step is to estimate your costs.

Variable costs refer to those costs that vary directly with sales. It is the cost of the materials and labor for the item being sold.

Fixed costs, on the other hand, refer to costs that do not vary directly with the number of items sold.

Most marketing expenses fall within the fixed cost category.

Some organizations use a system called Target Costing. The objective here is to first determine the price that customers are willing to pay for the product or service and then designing the product so that you could sell it for that price. It means working backward from the selling price, taking into account the profit margin you would require, and arriving at a maximum production cost for the product itself. Then it requires designing a product that would cost no more.

Another used system called Cost Learning Curve, or Experience Curve: As get more experience producing a product, get more cost effective. Can bring costs down. One reason organizations choose a penetration pricing strategy is to capture as much share/volume as possible in a during growth stage - and betting on the fact that will get both economies of scale and benefits from the experience curve. This system has the following characteristics.

- Based on improved know-how
- Purchasing optimization
- Design simplification for manufacturing processes
- Output increase for production facilities
- Improvement of sales force
- Selection of distributors
- Increased performance of sales promotion campaigns

4. Analyze Competitors' Costs, Prices, Offers

The fourth step is to analyze competitors' costs, prices, and offers. Information to do this can come from your sales force, your customers, your suppliers, your competitors' web pages and public documents, among others.

5. Select a Pricing Method

Mark-up/Cost-Plus Pricing: Easy, but does not optimize profits. Some companies take a profit based on a percent of their own cost rather than selling price. This would be called taking a "mark-up". It is also called "Cost-Plus Pricing". While it is certainly one of the easiest ways to come up with a price, it doesn't take any market factors into account. Therefore, you may "over-price" in a weak market and "under-price" in a strong market.
Target Return Pricing: This pricing method is similar to Cost-Plus pricing but takes it a little further. It is pricing in order to gain a particular return on investment. To do this you must be able to estimate demand. If you are in a business where you have historical data, it is possible to do this. It is important to be aware imagine what happens if you aren't able to sell the number based in the data that you thought.
Perceived Value Pricing: This method places the emphasis on the buyer's perception of value, rather than on the seller's cost. One way to approach this is to find out how your customers are currently solving a problem and how much it costs them to do that. If your product/service/technology can solve the problem more efficiently, you could charge them what they are currently paying for the alternate solution plus a premium to represent a portion of their savings from the increased efficiency. A key concept in perceived value pricing is that you are able to charge a higher price for a product if your target customer perceives real value in the product vs. competitors' products.

Value Pricing: This refers to very low prices – and with a no frills approach. Michael Porter points out that there are really only two ways to compete: Through differentiation and through being the low-cost producer who can, in turn, charge the lowest prices.
Going Rate Pricing: This refers to basing your prices on competitors' prices. It is often used where costs hard to measure or competitor response is uncertain.
Reference Pricing: While similar to going rate pricing in concept, the comparison here is with substitute products. In the highly uncertain world of high tech new products, it often occurs that there's no directly competitive product in the marketplace. However, there are always substitutes. The method here would be to compare the product with substitutes.

6. Select Final Price

The final step, then, is to select the final price. There are a number of additional elements that come into play as you try to do this.

Psychological Pricing: Refers to the fact that different prices represent different psychological values. Customers often use price as an indicator of quality
Influence of Other Marketing Mix Elements: refers to the fact that different levels of promotion, advertising, and/or quality can influence the level of pricing that you choose. For example, if you intend to advertise the product heavily, you will stimulate demand and be able to charge higher prices.
Company Pricing Policies: refers to the fact that prices have to be consistent with company pricing policies
Impact of Price on Others: refers to the fact that others will be watching. You need to ask yourself:

- Sales force willing to sell at that price?
- Will competitors react?
- Will suppliers raise their prices?
- Will the government intervene?

Promotion Strategy

Promotion, or the marketing communications mix, is what people most often think of when they hear the term "Marketing". It includes personal selling, trade shows, events, sales promotion, advertising, and public relations.

Exhibit 57
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

Once it is determined how the target customer will perceive a product or service, the next step is to determine how you want to communicate and promote the offering to that customer. The first step is the launch strategy. Should a rapid skimming strategy be adopted, with high levels of promotion and a high price? Or, should a rapid penetration strategy be used, with high levels of promotion and a low price? Or, perhaps a slow skimming strategy, with low levels of promotion and a high price should be used; or a slow penetration strategy, with low levels of promotion and a low price. Once the promotion level is chosen, the next phase is the communication process. In order to develop effective communication with your customers, the message should mesh and interact with the thinking process of the receiver, and should be interpreted the way it was intended.

Before stepping into some of the details of promotion, one of the things you should ask yourself is what you want to accomplish with promotion. There are four overall pricing/promotion combinations that have been found helpful in introducing new products to market.

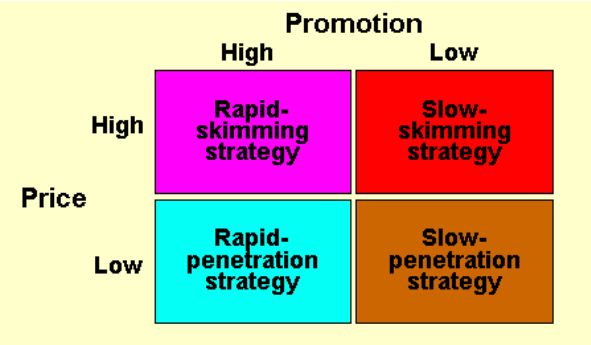


Exhibit 58
(IC2 Institute of the University of Texas at Austin, Master of Science degree in Science and Technology Commercialization program, course Managing the Technology-Based Product Cycle)

Rapid Skimming: This refers to launching the new product at a high price and a high promotion level. This strategy makes sense when a large part of the potential market is unaware of the product; those who become aware of the product are eager to have it and can pay the asking price; and the firm faces potential competition and wants to build brand preference/market position.

Slow skimming: This refers to launching the new product at a high price and low promotion. This strategy makes sense when the market is limited in size; most of the market is aware of the product; buyers are willing to pay a high price; and potential competition is not imminent.

Rapid penetration: This refers to launching the product at a low price and spending heavily on promotion. This strategy makes sense when the market is large, the market is unaware of the product, most buyers are price sensitive, there is strong potential competition and the unit manufacturing costs fall within the company's scale of production and accumulated manufacturing experience.

Slow penetration: This refers to launching the new product at a low price and low level of promotion. This strategy makes sense when the market is large, is highly aware of the product, is price sensitive, and there is some potential competition. In essence, you are

asking yourself how much money you want to invest in promotion before you start deciding how to spend it. Do you want to enter the market with high promotional spending or low promotional spending?

The next step is to determine specific communication objectives. These objectives reflect the different types of promotion and advertising that will be used to achieve the strategy. Are the objectives of the strategy to develop awareness in the mind of your target? Or perhaps to develop customer knowledge about how this offering could benefit them. Maybe the goal is to develop a particular attitude, such as trust, or liking, that could pave the way for a later purchase. Clearly in the launch phase of a new product or service, the challenge will be to develop, in the mind of your target customer, an awareness of the existence and benefits of the product or service, or the organization.

The tools of The Marketing Communications Mix are:

Personal Selling: refers to the use of oral presentations and conversations with prospective buyers, face to face or via telephone, for the purpose of making a sale. Excellent personal selling combines strong interpersonal and listening skills with a deep understanding of the product and the benefits it provides to the buyer.

Advertising: is any paid form of non-personal presentation and promotion of ideas, goods, or services by an identified sponsor. Advertising often utilizes mass media and may be adapted to take advantages of a given mediums strengths to convey information.

Sales Promotion: Sales promotions consist of short-term incentives to encourage purchase of sales of a product or service. Limited time offers or dated coupons are common sales promotions.

Direct Marketing: Refers to directed communications with carefully targeted individual consumers to obtain an immediate response. This could be through the telephone (telemarketing), door-to-door, or, through the newest direct marketing vehicle, the Internet.

Public Relations: Public relations is an on-going process of building good relations with the various publics of the company. Key elements in the process are obtaining favorable publicity, building and projecting a good "corporate image," and designing an information support and response team to respond proactively to unfavorable rumors, stories, or events.

Place Strategy

The last set of strategies relate to Place, or how you intend to get your products / services / ideas to your customers.

Distribution channels provide the means to place your product or service in the hands of your customer. They represent a variety of types of organizations or individuals, ranging from your own direct sales force to intermediaries such as distributors, resellers, original equipment manufacturers, or OEMs, and systems integrators. The challenge is to determine the type, or types, of channels that will best suit your needs, and then select the right organizations to do the job.

In the early stages of launching a technology product or service, a period often characterized by a need to create demand, few tools are more effective than a direct sales force. While extremely expensive, on a per-sale basis, when compared to other promotion or communication tools, a technically competent and consultative sales person is uniquely suited to clarify and address the needs of individual target customers.

The direct sales force is usually indicated when you have:

A Smaller Market Size: It is expensive to maintain a direct sales force. They must be able to reach all customers easily. If it is a large market, they simply may not be able to reach them all. Geographically limited. This is similar to the first one, but in a geographical sense. That is, if your customers in a particular region are widely dispersed, it may be better to hire a distributor who serves those customers for a variety of suppliers. That way, a given sales call for a distributor may generate sufficient sales to cover the cost of the visit.

Homogeneous Target: If all of your customers are very similar, and your sales force is similar to them, you have a workable arrangement. However, if you have a broad, heterogeneous customer base, distributors could be more help.

Non-standardized Products. If you are selling customized products, your own sales force will likely be better versed in selling the products while a distributor may not be.

If you need to know your customers well it is better to go with a direct sales force. Similarly, if you need more control, or you need high levels of flexibility, you will have more control over a direct sales force.

In the introductory and growth stages of an innovative product or service, the emphasis must be on persuading a few individuals, generally innovators and early adopters, that your technology can solve a critical problem. A sales person can answer questions, provide demonstrations, and probe for and overcome objections. Moreover, a sales person can, and must, conduct the follow-up crucial to building trust and maintaining a productive business relationship.

Consideration to Select Distribution Channels:

- Take customer segments/motivations into account when designing channel strategy
- Different purchase occasions support different channel strategies
- No matter how fabulous your new product is; success depends on support from distributors and customers/consumers.
- Incentives for intermediaries are as important as incentives for customers/consumers.
- More channels = higher unit sales (at least in short term), but be aware of trade-offs.

In the current global competitive environment, historical go-it-alone strategies are being replaced with networks of strategic alliances. Some alliances are formed for the purpose of pooling resources, as in the case of research consortiums. Others focus on forming closer, more productive ties with customers, employees, and suppliers, for example, a distributor alliance. Still other alliances are formed to take advantage of concrete business opportunities. For example, one company may offer technological expertise to a partner in exchange for access to a new geographical or industrial market. Other marketing related alliances include service, promotional, and logistics agreements.

More and more, strategic alliances are becoming a major way of conducting business. There are a number of different alliances in which you, or your organization could be involved. These include market entry alliances, such as using a distributor to help you break into a new market. Other alliances are formed to gain expertise. Finally, you see a number of marketing alliances such as distribution alliances, promotional alliances, logistics alliances and service alliances.

APPENDIX H

TECHNIQUES IN COMPETITOR ANALYSIS

Since the late 1960s a number of techniques have been developed for displaying a diversified firm's operations as a "portfolio" of businesses. These techniques provide simple frameworks for charting or categorizing the different businesses in a firm's portfolio and determining the implications for resources allocation. Techniques for portfolio analysis have their greatest applicability in developing strategy at the corporate level and in aiding in corporate review of business units, rather than in developing competitive strategy in individual industries. Nevertheless, if their limitations are understood, these techniques can play a part in answering some questions in competitor analysis.

The focus will be on outlining the key elements of the two most commonly used techniques – the growth/share matrix identified with the Boston Consulting Group and the company position/industry attractiveness screen identified with GE and McKinsey – and discussing their use in competitor analysis.

The Growth/Share Matrix

The growth/share matrix is based on the use of industry growth and relative market share (is the market share of the firm relative to that of the largest competitor in the industry) as proxies for (1) the competitive position of a firm's business unit in its industry and (2) the resulting net cash flow required to operate the business unit. This formula reflects the underlying assumption that the experience curve is operating and that the firm with the largest relative share will thereby be the lowest cost producer.

These premises lead to a portfolio chart like that shown in next exhibit, on which each of a firm's business unit can be plotted. Although the cut-offs in terms of growth and relative market share are arbitrary, the growth/share portfolio chart is usually divided into four quadrants. The key is that the business units located in each of these four quadrants will be in fundamentally different cash flow positions and should be managed differently, which leads to some implications for how the firm should try to build its overall portfolio.

Growth/Share Matrix

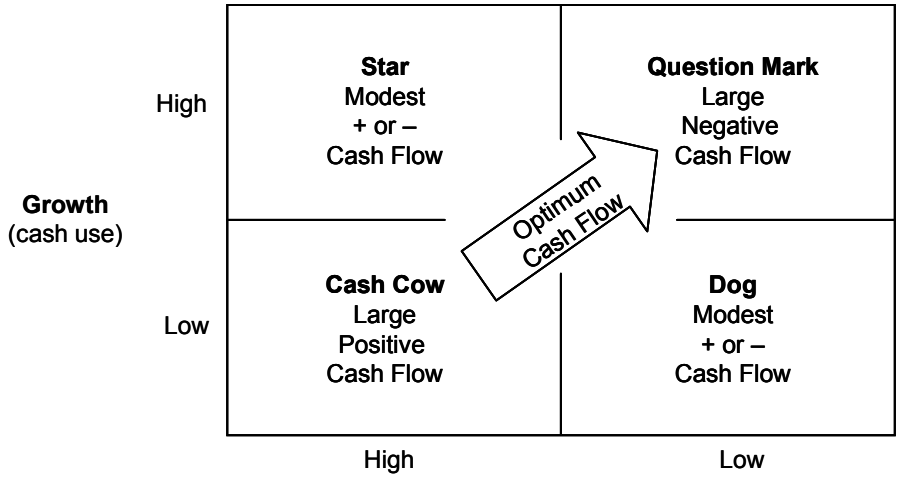


Exhibit 59

(Porter Michael E., Competitive Strategy, Techniques for Analyzing Industries and Competitors)

- Cash Cows: business with high relative share in low-growth markets will produce healthy cash flow, which can be used to fund other, developing businesses.
- Dogs: businesses with low relative share in low-growth markets will often de modest cash users. They will be cash traps because of their weak competitive position.
- Stars: businesses with high relative share in high-growth markets usually will require large amounts of cash to sustain growth but have a strong market position that will yield high reported profits. They may be nearly in cash balance.
- Question Marks (sometimes called wildcats): Businesses with low relative share in rapidly growing markets require large cash inflows to finance growth and are weak cash generators because of their poor competitive position.

Following the logic of the growth/share portfolio, cash cows become the financiers of other developing businesses in the firms. Ideally, cash cows are used to make question marks into stars. Since doing so requires a great deal of capital to keep up with rapid growth as well as to build market share, the decision about which question marks to build into stars becomes a key strategic one. Once a star, a business eventually become a cash cow as its market growth slows. Question marks that are not chosen for investment should be harvested (managed to generate cash) until they become dogs. Dogs should either be harvest or divested from the portfolio. A firm should manage its portfolio, according BCG, so that this desirable sequence occurs and so that portfolio is in cash balance.

The applicability of the portfolio model depends on a number of conditions, some of the most important of which are summarized below:

- The market has been defined properly to account for important shared experience and other interdependencies with other markets. This is often a subtle problem requiring a great deal of analysis.
- The structures of the industry and within the industry are such that relative market share is a good proxy for competitive position and relative costs. This is often not true.
- Market growth is a good proxy for required cash investment. Yet profits (and cash flow) depend on a lot of other things.

The Company Position/Industry Attractiveness Screen

Another technique is the three-by-three matrix variously attributed to General Electric, McKinsey and Company, and Shell. One representative variation of this technique is shown in the next exhibit.

The two axes in this approach are the attractiveness of the industry and the strength, or competitive position, of the business unit. Where a particular business unit falls along these axes is determined by an analysis of that particular unit and industry, using criteria those listed in the exhibit. Depending on where a unit falls on the matrix, its broad strategic mandate is either to invest capital to build position, to hold by balancing cash generation and selective cash use, or to harvest or divest. Expected shifts in industry attractiveness or company position lead to the need to reassess strategy. A firm can plot its portfolio of business on such a matrix to insure that the appropriate allocation of resources is made. The firm can also try to balance the portfolio in terms of its mix of developing and developed business and the internal consistency of cash generation and cash use.

The company position/industry attractiveness screen is less precisely quantifiable than the growth/share approach, requiring inherently subjective judgments about where a particular business unit should be plotted. It is often criticized for being more vulnerable to manipulation.

Like the growth/share portfolio matrix, the company position/industry attractiveness screen offers little but a basic consistency check in formulating competitive strategy for a particular industry.

The real issues involve deciding where to plot the business on the grid, deciding if position on the grid implies the indicate strategy and working out a detailed strategy concept for building, holding, or harvesting. These steps require the sort of detailed analysis because the criteria listed in the next exhibit are far from sufficient to determine industry attractiveness, company position, or the appropriate strategy.

The screen can play a part in the competitor analysis, in much the same way as the growth/share matrix can.

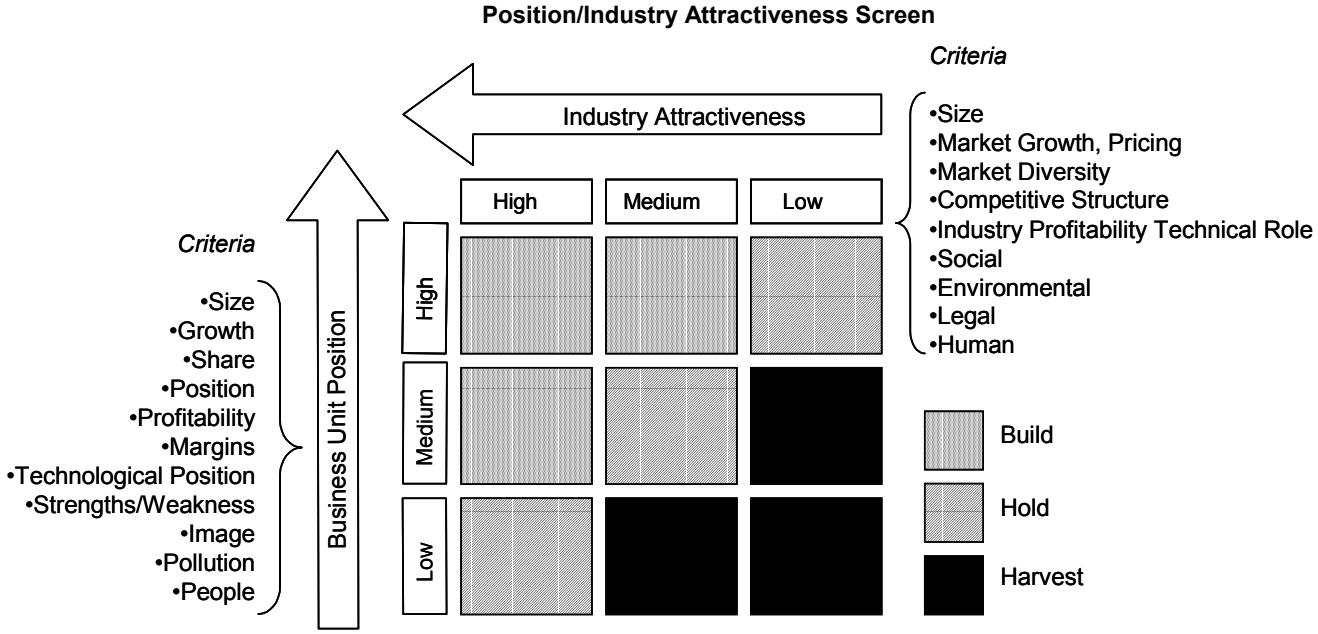


Exhibit 60
(Porter Michael E., Competitive Strategy, Techniques for Analyzing Industries and Competitors)

APPENDIX I

BASIC ACCOUNTING CONCEPTS

Assets

Current Assets

The five items described below are the most common forms of current assets, although there could be others. Assets are classified as current as long as they are cash, or can be converted into cash, within the customary operating period of business (usually one year). Current assets, therefore, are cash or assets that can become the equivalent of cash within one year's time.

- Cash. Cash usually represents the funds on hand held by the business, that is, bills or coin and funds that are readily available in checking accounts. It does not include cash funds for which there is some legal constraint against use, such as funds held in special deposits or in escrow.
- Marketable securities. Marketable securities represent temporally investments in the stocks or bonds of the businesses or enterprises and possibly in government bonds. Next to cash, they are usually the most liquid assets and can be turned into cash on short notice.
- Accounts receivable. Accounts receivable represent monies owned to the business by customers for the purchase of merchandise. Accounts receivable are created when goods or services are provided and the business receives a legally enforceable promise of payment rather than cash. In our personal lives, we create accounts receivable whenever we buy merchandise on credit and then wait to make payment on it until we receive a statement of account for the purchase. Accounts receivable are often shown as a gross amount of accounts receivable, and then an "allowance for doubtful accounts" is shown as a deduction. This allowance represents an estimate of accounts receivable on which the business does not expect to be able to collect.
- Inventories. Inventories represent merchandise that has been purchased by a business and is being held in stock until such time as it is resold
- Prepaid expenses. Prepaid expenses are those that have been paid in advance by the business. They constitute a right to a future service that will be used but that has not yet been used by the business. A common example of a prepaid expense is the insurance coverage a business pays for in advance of receiving services.

Fixed Assets

Fixed assets consist of tangible permanent investments in so-called capital facilities, usually brick and mortal, or equipment. In many balance sheets, these particular assets are much more descriptively and accurately labeled property, plant, and equipment.

Almost all these fixed assets are shown in the following order in the balance sheet:

- Gross fixed assets: The term refers to the original value, that is, the costs incurred to purchase or construct the physical facility.
- Accumulate depreciation: Depreciation is a major accounting concept in itself, let us define depreciation as an estimate of how much the original value of all the company's assets have decreased owing to usage, passage of time, obsolescence, or a combination of these.
- Net fixed assets. Depreciation is deducted from the gross fixed assets to arrive at the figure for the net fixed assets, which is the value (that is, the cost) of the fixed assets diminished by the depreciation that has accumulated to the date of the financial statement.

Other Assets

Other assets, the third and final classification of assets on the balance sheet, include various assets that cannot readily be classified as either current or fixed. Other assets, like fixed assets, tend to be long term.

Common forms of other assets are the Intangible Assets; they include patents, copyrights, franchise, and similar matters. These assets can have significant value in generating income for the business, but they are distinct in their form the tangibility of, say, a plant.

Liabilities and Shareholders' Equities

Current Liabilities

Current liabilities include obligations that are expected to fall due within the next accounting period (usually the next year). This particular definition corresponds to the same parameter used in the definition of current assets. There are several types of common current liabilities.

- Accounts payable: Accounts payable represents the counterpart of accounts receivable. With an account payable, the business is debtor rather than the creditor. Thus, it has a legal obligation to make a payment rather than to receive it.
- Notes payable: Note payable is similar to account payable. Usually the legal instrument associated with this obligation is much more formal and involves a longer period of time for payment. A note payable, like an account payable, has its converse in the note receivable, which is shown on the left side of the balance sheet as an asset.
- Accrued liabilities: under the law, the term accrue means to become a present right or enforceable demand. In accounting the term is used similarly and represent obligations of the business that have not yet been paid. Such obligations can take several forms and may or may not be indicated separately on the balance sheet.

Long-Term Liabilities

Long-term liabilities include those debts (or claims on assets) that fall due a year or further in the future. Long-term liabilities are usually incurred to obtain more permanent funds for the business. They are often shown according to the source of funds.

Funds obtained from a bank loans can be either a short- or long- term liability. If they are due and payable within one year from the date of the balance sheet, they are classified as a short-term liability. If they are payable in more than a year, they are classified as a long-term liability and are shown in this section of the balance sheet.

Shareholders' Equity

Shareholders' equities represent the claim the owners have on the assets of the business after the obligations to all other creditors have been fulfilled. There are usually two basic forms of shareholders' equity:

- Common stock (or capital stock): Common stock represents the original contribution to the business that has been made by the owners. Under any form of business structure, these are the funds originally contributed by the owners of the business. They are to be used to purchase assets and conduct the affairs subsequent to formation of the business.
- Retained earnings: Is the second classification under shareholders' equity. An represents the total cumulative net income that a business earns over its life, less any funds that have been returned to the owners in the form of dividends.

Sales

Sometimes this item is called sales revenue or just revenue, but, whatever its title, it refers to the amount received (or to be received –accounts receivable) for goods or service provided (or, under the realization principle, delivered) to other organizations in the conduct of its business for the period shown.

Sales are also called Gross Sales.

Net Sales

When discounts, returns and allowances are subtracted from gross sales, the remainder is called net sales and is referred to as the "top line" because they often appear first on the Income Statement.

Cost of Goods Sold

It is usually shown as less cost of goods sold since is deducted from sales. It represents what it cost the business to either purchase or manufacture the goods it has sold in order to generate the revenues that appear in the sales. In most business, other than those providing a service, cost of goods sold represents the most significant item of expenses for the business. For this reason, it is almost always shown as a separate item.

Gross Profit

Once net sales are determined, gross profit or gross margin is what remains after the cost of sales is deducted from net sales. For example, a retail store, which buys a scanner for $150 and sells it for $300 would show net sales of $300 and a cost of goods sold of $150. The difference, or $150, would be classified as the gross profit or gross margin.

Operating Expenses

The operating expenses are the expenses incurred to operate the business for the period covered by the income statement. Sometimes they are shown as a single item or subdivided in the two major components, selling expenses and administrative expenses.

Selling expenses include the cost of sale organization, sales promotions, and similar factors. Administrative expenses cover cost of managing the organization and typically include insurance costs, rent, heat, light, accounting, and legal costs.

Income Tax

Income taxes, which have become a significant item for reducing business income, are almost shown separately.

Net Operating Income

Net operating income from the gross profit, operating expenses such as rent, wages, sales and marketing, are deducted to calculate net operating income, or NOI. Since NOI is a pre-tax number, it is sometimes referred to as earnings before interest and taxes, or EBIT. Once the income and expenses from financing and interest are incorporated, along with income taxes, the remainder is the business's net income, or the "bottom line”.

NOI represents the increment (of if there is a net loss, the decrement) that has resulted from successful operation of the business for the period of time covered by the income statement.

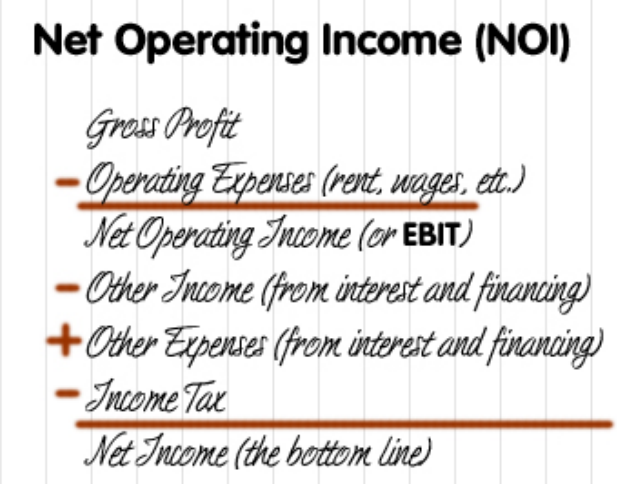


Exhibit 61

Business owners must be able to classify and calculate the company's total costs in order to perform financial analyses.

Costs can be classified into two categories - Fixed Costs and Variable Costs.

> Fixed Costs are those that do not change with a company's level of activity. Fixed costs include rent, insurance, salaries, depreciation, and property taxes. In contrast,
>
> Variable Costs variable costs fluctuate in proportion to the number of units produced or sold by a business and include hourly wages, the cost of raw materials, supplies, repairs and shipping expenses.

When fixed and variable costs are added together, business owners can determine the total costs associated with the production of their goods or services.

Costs can also be classified as Direct or Indirect.

> Direct Costs can be clearly traced to a product and constitute a significant portion of the overall value of a product.
>
> Indirect Costs, also called overhead, factory burden, or general factory expenses, are costs that are not as easily associated with a specific product.

ANNEX 1

Next are presented the results of the interviews realized to venture capitalist and investors.

In some questions they could answer with more than 1 option.

To you or your company, what are the most important elements to fund a project or idea?

_11_ Market Opportunity
_8_ Management Team
_5_ Product & Service
_5_ Core technology/innovation
_3_ Sustainable Competitive Advantage

Actually market opportunity and the quality of the management team are two important aspects to the investor, we identify this at the State of the Art on chapter 1.

Would your company fund a project without a business plan?

_2_ Yes
_13_ No

With this question we can confirm the importance of the business plan to seek investment.

What percentage of the projects or business plans that you or your company reviews achieve funding?

_15_ 0-20%
_0_ 21-40%
_0_ 41-60%
_0_ 61-80%
_0_ 81-100%

A part of the business plans that are rejected are because they simply do not fit the investment focus (industry area, type of market offering, region of investment, etc.) so is important to understand the venture capital focus before sending a BP proposal.

What kind of projects are you or your company looking for?

_8_ Telecommunications
_5_ IT
_4_ Internet &Media
_4_ Healthcare
_2_ Bioscience
_3_ Technology

How many people work in analyzing the project's feasibility?

_8_ 1-3
_4_ 4-6
_2_ 7-10
_1_ more than 10

Do you or your company have a specific methodology for project evaluation?

_9_ Yes
_6_ No

Do you or your company have a checklist for project evaluation?

_10_ Yes
_5_ No

At the end of this chapter there's to checklist based in questions provided by one on the interviewee.

How long does the evaluation process take?

___ Less than 1 week
_1_ 2 weeks
_1_ 3 weeks
_2_ 4 weeks
_11_ more than 4 weeks

This information is highly variable; they can value the quickest 1-hour and the longest 14 or more months depending on the project.

In your opinion, would you have funded a project that presented a more robust and complete BP than the one they did?

_10_ Yes
_5_ No

The BP serves as an important first impression, but any investment decision is made only after a thorough examination of all the aspects of the business.

What are the most common gaps you find in the business plans?

_9_ Market Research
_5_ Incomplete or Unrealistic Competitive Analysis
_5_ No enough Detail on the Technology
_3_ Unrealistic Financial Data
_3_ Management Team
_1_ Revenue Assumptions

Which business aspects do you consider most business plan should include that actually doesn't happen?

-Keep focus on the concepts identified above to get investor interest.
-Planning.
-The BP needs to be balance and cover all aspects with the same way.
-CV's for management.
-Financial projections.
-Downside risk for company and investors.
-Detail on competitive advantage.
-Knowledge in the space he is operating.
-More on the technology and team.

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RESUME

Cesar Centeno

Professional Objective

To promote the engineering process of creating, developing, integrating, sharing, and applying knowledge on IT and electronics. Working in the area of technology R&D, and focusing in converting technology to wealth for the business sector and the economic growth of my country.

Education

Master in IT Management
ITESM, Campus Monterrey
December 2001, Monterrey, N.L.
Thesis: "BUSINESS PLAN DEVELOPMENT METHOD FOR TECHNOLOGY-BASED PROJECTS TO SEEK VENTURE CAPITAL"

Digital Telecommunications Academic Degree (Diploma)
ITESM, Campus Monterrey
May 2000, Monterrey, N.L.

B.S. in Electronics and Communications
ITESM, Campus Monterrey
December 1998, Monterrey, N. L.

12th Grade (Senior Year)
Lafayette High School
August of 1993 - June of 1994, Minnesota, USA

Bachelor
ITESM, Campus Toluca
June of 1993, Toluca, Edo. de Mex.

Work Experience

Grupo ACT
Consultant (founder): Company dedicated to promote the engineering process of creating, developing, integrating, sharing, and applying knowledge on IT and telecommunications.
http://www.grupoact.com
Feb 01 - Today

WorldMexico.com
Operations Manager: Internet Portal dedicated to promote and sell Mexico as a business nation via the World Wide Web, offering a wide variety of products and value added services. Responsible for the selection & implementation of technology tools, conducted strategic alliances with organizations and enterprises that provide services and value added to the portal, Information and Content's sections, WorldMexico's PR, and human resources.
Nov 99 - Feb 01, http://www.worldmexico.com

Co-founder of Innouva Technologies de Mexico S.A. de C.V.
Innouva Technologies is a company of people dedicated to the design and development of integral cutting edge technology solutions attaining total customer satisfaction. Establishment of a business model, searching for partners and investors, support in the commercialization of the 3DTV system and the company's PR.
December of 1998, http://www.innouva.com

Three Dimension Television System.
Development of 3D television system that allows the user to see images like normal human vision, this means, the user sees 3D moving full color images on a television screen, NTSC format compatibility.

Patent Pending
9810676 (IMPI), D.F., Mexico.
09/460476 (USPTO), Dallas, TX., USA.

Computer Services Department, ITESM Campus Monterrey.
Installing software and network hardware.
January – August of 1998.

Expertise Areas

-Selection and implementation of IT to optimize business operations
-Development and establishment of business agreements and partnerships
-E-business (selection & implementation of technology tools, business strategy & market penetration)
-Establishment of business strategies, implementation and monitoring
-Development of marketing and promotional strategies in the Web
-Marketing and selling of ad spaces in Web
-Selection, planning and coordination of teams
-Establishment and supervising of goals and objectives.
-Development of business plans in search of venture capital.
-Business PR

Academic Activities

-Electronics and Communications Student's Society
Sponsoring Coordinator, ITESM Campus Monterrey, SAIEC 98-99
-Audio & Video Club Co-founder Member.
Seminars Organizer, ITESM Campus Monterrey, January-December 1998
-Organizer of the Following Events

- Virtual Instrumentation Contest, ITESM-National Instruments
- Siemens Seminar – Hitachi, ITESM-Insight Electronics
- Atmel Seminar, ITESM-Insight Electronics
- XII y XIII International Electronic and Communications Symposium
- 2nd and 3th IEC Day

Extrascholar Activities

-IEEE -*The Institute of Electrical and Electronics Engineers*
Member since January of 1998
-Representative Soccer Team Member
ITESM Campus Toluca, 1991-93 y 1994-95

Awards

-Romulo Garza Innovation and Technology Development Fund
Funding winning proposal, ITESM, December 1999.
-National Science and Technology Contest 1999
Nuevo Leon State Winners, National Finalist, Convention Center Puebla, Puebla, July 1999.
-AT&T Labs Student Enterprise Award, IEEE
Winning proposal Latin America Region, April 1999.
-Engineering Projects IEC-98
First Place, ITESM Campus Monterrey, Mty., N.L. December 1998.

Given Lectures

-Expotec 2000
ITESM Campus Monterrey, Monterrey, N.L. September 2000.
-1st Media Sciences' Day
ITESM Campus Monterrey, Monterrey, N.L. April 2000.
-II Communications Day (IEEE Communications Chapter)
ITESM Campus Monterrey, Monterrey, N.L. March 2000.
-XV International Symposium on Electronics and Communications SIDEC ´00.
ITESM Campus Monterrey, Monterrey, N.L. February 2000.
-2nd International Symposium on Electrical and Electronic Technology
Centro Saulo, Torreon, Coah., September 1999
-CAI´99 Conference
Instituto Tecnologico de San Luis Potosi, San Luis Potosi, S.L.P., May 1999
-Entrepreneurship Show 1999
ITESM Campus Monterrey, Monterrey, N.L., May 1999
-8th Technology Forum and Industrial Robotics and Automation Expo 1999.
World Trade Center, Mexico City, April 1999
-9th CIECE ´99
State Auditorium, Guanajuato, Gto., March 1999.
-XIV International Symposium on Electronics and Communications SIDEC ´99.
ITESM Campus Monterrey, Monterrey, N.L. March 1999.

Publications

*Espacios AVIACSA magazine Autumn 2000
*INTEGRATEC magazine September - October 1999
*Espacios AVIACSA magazine Summer 1999
*Transferencia magazine July 1999
*NoticIEEEro, IEEE Latin America bulletin January 1999

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References

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Objetivo Profesional

Promover el proceso de crear, desarrollar, integrar, compartir y aplicar el conocimiento de las tecnologías de información y electrónica, enfocado a la conversión de tecnología en capital para las empresas, sectores industriales y para el crecimiento económico del país.

Escolaridad

Maestría en Administración de Tecnologías de Información.
Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Monterrey
Diciembre del 2001, Monterrey, N. L.
Tesis: "Business Plan Development Method For Technology-Based Projects To Seek Venture Capital"

Diplomado en Telecomunicaciones Digitales.
Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Monterrey
Mayo del 2000, Monterrey, N. L.

Título de Ingeniero en Electrónica y Comunicaciones
Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Monterrey
Diciembre de 1998, Monterrey, N. L.

12vo. Grado (Senior Year)
Lafayette High School, Red Lake Falls.
Agosto de 1993 - Junio de 1994, Minnesota, EUA

Certificado de Bachiller
Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Toluca
Junio de 1993, Toluca, Edo. de Mex.

Experiencia Laboral

Grupo ACT (Feb 01 – Actual)

-Consultor Asociado (fundador): En ACT **estamos comprometidos en promover el proceso de crear, desarrollar, integrar, compartir y aplicar el conocimiento de las tecnologías de información y telecomunicaciones en todos los sectores empresariales e industriales del país.**
http://www.grupoact.com

WorldMexico.com (Nov 99- Feb 01)

-Director de Operaciones (socio): Portal de Internet enfocado a la proyección de México, sus productos, servicios y empresas. Responsable de las actividades operacionales y contenido del portal, selección e implementación de las herramientas tecnológicas, del recurso humano, de consolidar las alianzas y las relaciones públicas del portal. Portal lanzado dentro del Pabellón de México en la Expo Hannover 2000 en Alemania, http://www.worldmexico.com

Innouva Technologies de México S.A. de C.V. (Dic 98- Actual)

-Socio Fundador: Empresa de profesionales dedicados al diseño y desarrollo tecnológico de punta para proporcionar soluciones integrales basados en las nuevas tendencias tecnológicas. Responsable de establecer modelo de negocio, penetración comercial de la nueva tecnología, búsqueda de socios e inversionistas, comercialización del sistema 3DTV y relaciones públicas de la empresa. http://www.innouva.com

-Sistema de Televisión en Tercera Dimensión.
Desarrollo e implementación de un sistema de televisión en tercera dimensión (3DTV) compatible con el formato estándar NTSC.
ITESM Campus Monterrey, Mayo – Diciembre de 1998.

Patente en trámite

No. de expediente: 9810676 (IMPI), D.F., México.
No. de expediente:09/460476 (USPTO), Dallas, TX., USA.

Departamento de Servicios Computacionales del ITESM Campus Mty. (Ene-Dic 98)

-Servicio Social: Software de Red: Instalación y configuración de equipo y software para redes.

Areas de Experiencia y Desarrollo

- Administración de proyectos.
- Consultoría empresarial
- Comercialización de tecnología (establecer estrategias y modelos de negocios para proyectos de base tecnológica)
- Selección e implementación de tecnologías de información e infraestructura tecnológica para optimizar operaciones en las empresas.
- E-business (selección e implementación de herramientas tecnológicas para el desarrollo de modelos B2B, B2C; Definición e implementación de estrategias publicitarias y promociónales en web.)
- Desarrolló de convenios y alianzas estratégicas con empresas.
- Relaciones públicas con empresas.
- Selección, planeación y coordinación de grupos de trabajo.
-Desarrollo de planes de negocio.

Premios

-Fondo de Apoyo a la Innovación y al Desarrollo Tecnológico Rómulo Garza
Propuesta Ganadora y Acreedora al Financiamiento. Sistema ITESM, Diciembre de 1999.
-Concurso Nacional Ciencia y Tecnología 1999
Propuesta ganadora del Estado de Nuevo León y Finalistas Nacionales. Puebla, Pue., Julio de 1999
-AT&T Labs Student Enterprise Award (IEEE)
Propuesta Ganadora en la Región Latinoamérica, Abril de 1999.
-Proyectos de Ingeniería IEC-98
Primer Lugar, ITESM Campus Monterrey, Mty., N.L. Diciembre de 1998.

Actividades Extra Académicas

-Miembro de la IEEE *The Institute of Electrical and Electronics Engineers*
Enero de 1998 – a la fecha.
-Miembro de la Sociedad de Alumnos de Ingeniería en Electrónica y Comunicaciones
Coordinador General de Patrocinios (mayo 98 – diciembre de 98)
ITESM Campus Monterrey, SAIEC 98-99
-Fundador y Colaborador del Club de Audio y Video.
Organizador de Seminarios
ITESM Campus Monterrey, Agosto-Diciembre 1998
-**Miembro del equipo representativo de Fútbol Soccer**
ITESM Campus Toluca, 1991-93 y 1994-95

Actividades Académicas

Organizador y Coordinador en los siguientes eventos: (ago. ´96 – dic. ´98)

- Concurso de Instrumentación Virtual, ITESM-National Instruments
- Seminario de Siemens – Hitachi, ITESM-Insight Electronics
- Seminario de Atmel, ITESM-Insight Electronics
- XII y XIII Simposium Internacional de Electrónica y Comunicaciones
- Segundo y Tercer Día IEC

Conferencias y Demostraciones Tecnológicas Impartidas

-Espacio 2001 (Televisa), Centro Cultural Mexiquense, Toluca, Edo. de Mex. Junio del 2001.
-Expotec 2000, ITESM Campus Mty, Monterrey, N.L. Septiembre del 2000.
-Primer Día de la Comunicación, ITESM Campus Mty, Monterrey, N.L. Abril del 2000.
-II Ciclo de Telefonía (IEEE), ITESM Campus Mty, Monterrey, N.L. Marzo del 2000.
-XV SIDEC ´00., ITESM Campus Mty, Monterrey, N.L. Febrero de 2000.
-II Simposium Internacional en Tecnología Eléctrica y Electrónica, C. Saulo, Torreón, Coah., Sep ’99
-Conferencia CAI´99, Instituto Tecnológico de San Luis Potosí, San Luis Potosí, S.L.P., Mayo de 1999
-Muestra Empresarial 1999, ITESM Campus Mty, Monterrey, N.L., Mayo de 1999
-VIII Foro Tecnológico y Expo Robótica Industrial y Automatización ´99, WTC, D.F., Abril de 1999
-IX Congreso Interuniversitario CIECE ´99, Auditorio del Estado, Guanajuato, Gto., Marzo de 1999
-XIV SIDEC ´99., ITESM Campus Mty, Monterrey, N.L. Marzo de 1999.

Publicaciones

-Revista **Espacios de AVIACSA**, Otoño del 2000 (Emprender en México)
-Revista **INTEGRATEC**, Septiembre-Octubre de 1999 (Una Realidad en Tercera Dimensión)
-Revista **Espacios de AVIACSA**, Verano de 1999 (Sistema de Televisión en Tercera Dimensión, 3DTV)
-Revista **Transferencia**, Julio de 1999 (Ya se Puede Ver la Televisión en Tercera Dimensión)
-Boletín para Latinoamérica **NoticIEEEro**, Enero de 1999 (3DTV, Three Dimension Television System)

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Estado Civil: Soltero
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